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Educational News and Editorial Comment

THE MEETING OF THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS

The thirty-first annual meeting of the North Central Association of Colleges and Secondary Schools was held at the Hotel Sherman in Chicago, March 17–20. From the standpoint of attendance, this meeting was the most successful in the history of the association. The president of the association, Harry M. Gage, president of Coe College, who arranged the program, had served the association as its secretary for six years prior to his election as president and, as a result, was in a strategic position to anticipate the desires of the members of the association. The following is a brief account of the happenings and the decisions of the meeting.

Professor J. D. Elliff, University of Missouri, was elected president of the association for the year 1926–27. Professor Elliff has been active in the affairs of the North Central Association since 1904 and has served the association on many important committees.

There were no significant changes made in the standards for the accrediting of secondary schools except the elimination of all restrictions on the size of class sections. The association, however, retained the restriction with regard to the number of pupil periods that may be assigned to a teacher, that is, 150 a day.

There were some changes made in the standards for the accredit-

ing of higher institutions, especially those relating to endowment requirements.

The association authorized its secretary to bring to the attention of the higher institutions the recommendation that they restate their entrance requirements in terms of twelve units earned in the senior high school. A special committee was authorized to bring before the association at its next meeting workable plans for the restatement of entrance requirements in different types of liberal-arts colleges as well as technical and professional schools.

A request for better classification of teacher-training institutions was considered by the Commission on Higher Institutions, but formal action was postponed for a year. It was evident, however, that there is a growing demand for greater differentiation between two-year and four-year institutions.

A special committee was appointed to study the athletic situation in higher institutions, especially from the standpoint of the effect of certain athletic policies on the standards for accrediting.

A special committee was authorized to study the problem of the effectiveness of institutional and private agencies in the placement of teachers. This committee was directed to report at the next meeting of the association.

The special study of the success of students in their first-year college work carried on by Dean C. R. Maxwell, University of Wyoming, revealed striking differences among the higher institutions in the percentages of failure in the case of Freshmen. Dean Maxwell was authorized to make a special study of the causes of these differences in a selected group of institutions.

In an address at the annual banquet, David A. Robertson, secretary of the American Council on Education, urged the North Central Association and all state educational organizations to combine in an effort to put an end to "diploma mills." He said that there are forty-one diploma mills in the United States and that these institutions are discrediting higher education, especially in foreign countries.

By unanimous vote, the fees for membership in the association were increased as follows: higher institutions, from ten dollars to twenty-five dollars; secondary schools, from two dollars to five dollars. It was the opinion of many that it is unwise for such an influ-

ential organization as the North Central Association to impair its efficiency through lack of funds. The fact that the expenses of the past year exceeded the income was a convincing argument for a change in fees. With the increase in revenue, it will be possible to finance the *North Central Association Quarterly*, the new official magazine, which will be sent to all members of the association, and to provide for more studies and investigations of perplexing problems which confront the association.

The association voted to establish the *North Central Association Quarterly*, which will serve as the official organ of the association and will supplant previous bulletins, reports, and other types of publications. The direction of the *Quarterly* was placed in the hands of an editorial committee of seven. Professor C. O. Davis, University of Michigan, was elected editor. Such a publication will serve to keep the members informed with regard to the activities, policies, and plans of the association.

A sharp debate developed over the report of the Committee on the Professional Training of Teachers presented by Dean C. E. Chadsey, University of Illinois. The report contained a summary of opinions relative to desirable practices in the professional training of teachers. The adoption of the report was strongly opposed by some on the ground that it might cause premature standardization of education courses. A resolution was finally adopted by a close vote indorsing the general spirit of the recommendations of the committee relative to education courses. It was evident from the discussion that the question of what is the best type of professional training of teachers is far from solved. A committee was authorized to make a further study of the problem, and it is probable that this issue will be vigorously debated in future meetings of the association.

In an address before the general association, President James R. Angell of Yale University urged the importance of more careful selection of college students. His address caused many to raise the question: Is it feasible for tax-supported higher institutions to place severe restrictions on admissions? It has been proposed that this subject be debated at the next meeting by the presidents of a few of the larger universities in the North Central territory.

There were 187 secondary schools added to the approved list of the association, which brings the total list to a number in excess of nineteen hundred.

It was decided to hold the next meeting of the association at the Hotel Sherman in Chicago, March 16–19, 1927.

In view of the number of important matters initiated at the meeting which call for report at the next meeting, the annual meeting in March, 1927, should be of great interest to executives in secondary schools and higher institutions.

J. B. EDMONSON

COLLEGE ADMISSION BASED ON SENIOR HIGH SCHOOL COURSES

The movement to leave the junior high school years free so far as specific requirements for admission to college are concerned is making progress. At its last meeting, the New England Association of Colleges and Secondary Schools adopted a report which contained the following paragraphs.

> The junior high school is an established fact in the organization of secondary education, and the chief burden of preparation for college must rest on the senior high school. It should be possible for the pupil who has followed a non-college preparatory curriculum in the junior high school to meet the college-entrance requirements in the senior high school.
>
> The tests for admission should be of such a nature as to place no restraint on the methods of work or procedure in the high school.

The plan accepted by the association to make effective the proposed detachment of the junior high school provides that three of the fifteen units required for admission to college shall be left entirely free to be determined by the school.

A somewhat different plan is now in operation in the University of Nebraska. A quotation from an official publication of that institution is as follows:

> The University of Nebraska has adopted the plan of admission from senior high schools for all high schools, leaving the former plan as optional temporarily.
>
> Graduates of accredited high schools may have full admission to freshman standing on 12 units (24 points), conditional admission on 11 units, completed in the senior high school (Grades 10, 11, and 12), provided that a year of algebra and a year of foreign language may be counted from work carried in Grade 9, in such instances the total credits earned in Grades 9 to 12 not being fewer than 15 units (30 points).
>
> Nine academic units are required, seven of which shall consist of a major

(3 units) and two minors (2 units each), which shall include English and mathematics for all colleges. Academic subjects are defined as English, foreign languages, mathematics, natural sciences, and social sciences. A major in foreign languages may consist of a year of one language and two of another, but a minor must be in a single language.

At its recent session, the North Central Association of Colleges and Secondary Schools adopted the following recommendation of the Commission on Secondary Schools.

That the Commission on Secondary Schools request the association to repeat its urgent invitation to the colleges included within the North Central territory to revise their terms of admission in such a manner as to permit students to qualify for entrance on the basis of units of work—eleven or twelve in number—accomplished in the tenth, eleventh, and twelfth grades of the secondary school.

BUDGET FOR EXTRA-CURRICULUM ACTIVITIES

The following statement is quoted from the bulletin issued by the New York State Department of Education.

A solution of the problem of financing extra-curriculum activities has been worked out in the Saratoga Springs High School. Prior to September, 1924, each activity conducted its own struggle for existence, and "drives," tag days, food sales, etc., did not relieve the situation, the burden always falling on a few pupils.

At the beginning of the school year 1924–25, a new plan was put into operation after the pupils had voted unanimously for the continuance of the school activities.

The plan has the following features: (1) Each pupil pays five cents a week for the forty weeks of the school year. (2) Two cents of each payment goes to athletics; one cent goes to the school paper; one cent, to class funds; and one cent, to the general fund. (3) Payment of the dues entitles the pupil to receive the school paper and to attend all home games except basketball, where a charge of not more than ten cents a game is permitted because of the limited seating capacity of the hall. (4) The general fund is used to finance the activities of clubs not otherwise provided for. (5) The money is collected each week by home-room representatives of the student council.

School officials report that the system is successful and popular. Practically all the pupils are members. Teachers report a better school spirit, improved attitude of pupils toward their work, and better discipline than formerly.

A CURE FOR TARDINESS

Stimulated by comments on tardiness made by F. H. Pierce in the January issue of the *School Review*, Walter D. Hood, principal of the Gilbert School, Winsted, Connecticut, writes as follows:

We have cured tardiness caused by negligence by the very simple device of requiring the tardy pupil to report in the principal's office forty-five minutes before the time for beginning school every morning for a week. This makes trouble for both the pupil and his parents, who have to get an earlier breakfast, and it seems to me to be very much more effective than keeping a pupil after school. It is a case of like curing like. Of course, you cannot apply this or any other rule universally, but we apply it in those cases where the tardiness seems to be avoidable, and it has worked with remarkable success.

SCHOLARSHIP CONTESTS

Deploring the low standards and attainments in scholarship of pupils in high school and of students in college is one of the favorite diversions of teachers, principals, superintendents, and college professors. So little has been done to remedy such deficiencies as exist that an experiment which has been carried on successfully in Kansas for some years merits attention and study. The Kansas State Teachers College, Emporia, has held its fifth scholarship contest. The movement began with a county contest in 1922. Last year the scope of the enterprise had greatly increased and included thirty county contests, thirty-three dual contests, and one state contest, in which eighty-one schools participated. In the annual state contest at Emporia contests are held in each of twenty-nine subjects. Any high school may enter two contestants for each subject up to a total of twelve. There is also a relay team, consisting of one pupil from each of the four grades. In addition, there is a general scholarship contest open to Seniors. The senior contest is in five subjects: English, history, mathematics, physical science, and social science. There are individual awards and cups for the schools winning the most points.

In an article in a recent number of *Teaching*, published by the Kansas State Teachers College, Emporia, H. E. Schrammel justifies the use of scholarship contests as a means of stimulating interest in scholarship. He writes:

Many high-school administrators and teachers have long keenly felt a need for some agency to aid the classroom and the school organization in the promotion of scholarship. In the promotion of athletics and other extra-curriculum activities, many supplementary agencies, such as bands, parades, trophies and medals, contests and tournaments, cheer leaders and "pep-fests," and what not, are extensively utilized. When a school develops winners in these activities, not only the school population but the whole community considers their victories

as its own. A keen interest is taken by all, and rightly so, in all their undertakings. The student who excels in scholarship, on the other hand, has not been encouraged by organized demonstrations. No band cheers him on to victory or aids in celebrating his success; no parade of student and community boosters eagerly supports him in his efforts and shows him that his interests are their interests, and his success their success.

The advantages of the contests are summarized as follows:

1. Scholarship contests give scholastic attainment a place of importance comparable with extra-curriculum activity accomplishments in the minds of the students and the people of the community. They tend to dignify the work of the classroom.

2. They help to accomplish more thorough classroom work. Students seek to learn all they can rather than to find the easiest route to "get by."

3. They help to bring about better teaching. In counties where these contests have been conducted repeatedly, the teachers are seriously seeking to learn how they may improve their part in the improvement of scholarship.

4. They tend to bring about a more scientific attitude toward teaching on the part of the teachers.

5. They aid in setting up standards of what teachers and students should accomplish; that is, they tend to give the work of the classroom greater objectivity.

6. They afford opportunity for comparison among schools, which is a desirable factor in the improvement of scholarship.

7. They furnish opportunity for boys and girls of similar abilities from different communities to come in contact with one another.

8. They furnish one of the most desirable kinds of school publicity.

9. They acquaint the public with, and interest it in, the work of the school as nothing else has done. Community interest in educational attainment will promote scholarship if the latter is made sufficiently objective for the public to comprehend what the objectives and the results are.

10. They are excellent aids to the gifted students in finding themselves. Many students are unaware of their abilities until they enter such a contest. Just how many students now in some college who would not have gone to college without the scholarship-contest influence cannot be estimated. It is certain, however, that there are such.

11. The state contest furnishes an opportunity for the high-school student to come in contact with a higher institution of learning. This in itself may be a deciding factor as to whether or not he shall eventually go to college.

12. The scholarship contest makes teachers desirous of knowing more about standard tests and their uses as desirable agencies for the promotion of better teaching and hence of greater scholastic efficiency.

13. They are a great aid in helping teachers to improve their own tests, which they must continue to use regardless of their use of standard tests.

There will be some who will object to scholarship contests on the theoretical ground that they substitute an artificial, extrinsic interest for an intrinsic interest. From the scientific point of view, the value of any school procedure must be judged not by speculating as to the interests which we think should be exhibited by pupils but by discovering the interests which pupils actually exhibit. We must, of course, study the remote effects as well as the immediate effects. Psychological experiments indicate beyond doubt that competition is a strong immediate incentive, but they do not throw light on the remote consequences. It may be possible, through a follow-up study of these contests, to gain some evidence on this broader problem.

IOWA'S CONTRIBUTION TO THE SCIENCE OF EDUCATION

The University of Iowa has recently published under the title, *Fifty Years of Progress*, a volume of sixty-eight pages containing a record of the proceedings of the conference held in 1923 on the fiftieth anniversary of the establishment in that institution of the first collegiate chair in education in the United States.

One paragraph from the historical address of Professor E. P. Cubberley delivered as a part of the program of the conference states the facts on which the University of Iowa bases its claim to being the first American seat of systematic collegiate teaching of education.

> Presumably the first lectures on pedagogy given in any American college were given in 1832 in what is now New York University. From 1850 to 1855 the city superintendent of schools at Providence, Rhode Island, was also professor of didactics in Brown University and gave lectures to the Seniors on the art of teaching. In 1860 a course of lectures on the "Philosophy of Education, School Economy, and the Teaching Art" was given to the Seniors at the then recently rejuvenated State University of Michigan. These were sporadic attempts, wholly unrelated in either time or place, but evidencing a slowly rising interest. In 1873, at the University of Iowa, a combined Professorship of Philosophy and Education was created which, though long since separated into two distinct departments, has persisted to the present and represents the first permanent institution of a department for the study of problems of education in any institution of higher learning in the United States. It is in celebration of this important creation that we, fifty years afterward, have met here today.

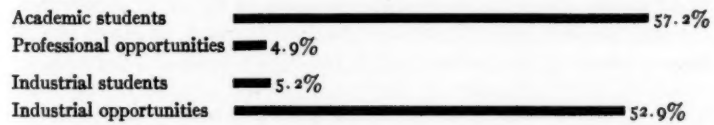
INDUSTRY AND THE CLEVELAND SCHOOLS

For many years the city of Cleveland has had a high-school system in which commercial and technical courses are given in special

schools and academic courses in science and the humanities are conducted in so-called "academic high schools." The separation of subjects represented by this type of organization naturally leads the citizen of Cleveland to think of vocational training as something wholly different from academic training. This fact is brought out very clearly in a committee report recently approved by the Board of Directors of the Cleveland Chamber of Commerce and published in a pamphlet entitled, *Industry and the Cleveland Schools*.

This pamphlet contains the following paragraph.

By studying the *United States Census Report of 1920*, the committee found that there are ten times as many opportunities for employment in the manufacturing and mechanical industries in Cleveland as there are in the professions. From reports furnished by the board of education, the committee also found that 57.2 per cent of the pupils above the junior high school grades were in academic high schools while only 5.2 per cent of them were in trade and industrial schools. Since academic high school graduates generally go on to higher institutions of learning, the committee believed that the following comparison was valid.



The report then cites other facts and points out three conclusions as follows:

Your committee on education believes that the foregoing facts and figures have proved three points of primary importance: (1) that the industrial and mechanical occupations in Cleveland offer more opportunities to boys and girls than any other class of occupation; (2) that Cleveland is failing signally to provide suitable training for boys and girls who wish to enter these occupations; (3) that Cleveland's proportion of her school budget devoted to industrial education is conspicuously small when compared with the proportion spent by twenty-five other cities.

The argument here presented will doubtless seem to many people to be cogent. Let us pause a moment to inquire whether the second conclusion cited is altogether supported by the facts. What is "suitable training for boys and girls who wish to enter these occupations"? Evidently, the committee is convinced that trade training is the only proper training for such young people.

Here we see the extent to which the division of the Cleveland

high schools has misled even the wise members of the Chamber of Commerce. If the members of the committee had looked closely into the curriculum of the technical high schools, they would have found that a great deal of academic instruction has been thought suitable for boys and girls entering the trades. Indeed, on a later page of the pamphlet, the following statement occurs with the approval of this same committee.

> While industrial schools exist to prepare boys and girls for useful employment, the cultural side of education also receives attention. Pupils are taught to be good citizens, to appreciate accuracy and good workmanship, to see the beauty in the everyday things around them, and to understand at least the rudiments of modern economics. In short, the schools aid them to live intelligently and appreciatively in modern life. Debating societies, athletic teams, bands, orchestras, school papers, and clubs of many kinds are among the extracurricular activities conducted.

The question of what should be done to make American high schools efficient has by no means been answered to the satisfaction of all people, but it is quite certain that one of the large problems is the combination of academic and practical training. A sharp line of demarcation will not be tolerated in the high schools of a democracy.

HIGH-SCHOOL SUBJECTS ON A VOCATIONAL BASIS

The pupils in the high schools of Detroit, Michigan, must hereafter earn the right to pursue the so-called "elective" studies. To this end, the curriculum has been divided into core and elective subjects. All pupils are required to take the core subjects, which include health, English, social science, general science, general mathematics, and auditorium attendance. All other subjects are elective and are considered vocational or prevocational. Among the "prevocational" subjects are higher mathematics, languages, and the specialized sciences, those studies necessary to higher education and leading to the professions.

The purpose of the plan is to place on the pupil himself the responsibility for his work and to obviate the necessity of dividing pupils into different achievement groups. It is expected that the plan will make of each class a picked group of pupils doing intensive work in their chosen subject. Every available method of motivation is utilized.

AMERICAN ASSOCIATION FOR MEDICAL PROGRESS

An association which has for its purpose the dissemination of information that will lead to more intelligent attitudes toward medicine and science in general has been organized under the name, "American Association for Medical Progress." The honorary president of the organization is Charles W. Eliot. The other officers are leaders in American public life.

From time to time the association publishes pamphlets on such topics as *Smallpox, a Preventable Disease* and *The Cancer of Ignorance: The Spread of Anti-Science in an American Commonwealth.* The pamphlets may be secured by addressing the association at 370 Seventh Avenue, New York City. A vigorous quotation from the pamphlet on smallpox is presented as an example of the type of material contained in the publications.

> Every community that has disregarded vaccination and has relied upon the supposed protection afforded by isolation and sanitation has paid dearly for the experiment. Gloucester, England, was pointed out as an example of a town protected by sanitation alone. As early as 1885 a local anti-vaccination society had been formed. A vigorous campaign was begun, and anti-vaccinationists were elected to the board of guardians. Instructions were given that no steps were to be taken to enforce the vaccination acts. About ten thousand children remained unvaccinated. Smallpox came into the city from an outside source, and by July, 1896, there were 2,035 cases, of which 443 died. Of these 443 deaths, 281 were of unvaccinated children under ten years of age. A similar epidemic broke out in Gloucester in 1923, when England and Wales reported 2,485 cases as against 2,240 in the preceding ten years. In this epidemic the county of Gloucester, which has been the center of the agitation against vaccination as well as the least vaccinated of the counties, had 935 cases or 37.7 per cent of England's smallpox cases.
>
> Smallpox is now on the increase throughout England and Wales, 3,765 cases having been reported for 1924 with three deaths. The people have the anti-vaccinationists to thank for this new visitation of their old-time plague. Their country serves as an illustration of what happens when secondary defenses are substituted for universal vaccination and revaccination, properly carried out.

FOSTERING DISHONESTY

A certain state high-school debating league is this year considering the question, "*Resolved*, That the United States should enter the Permanent Court of International Justice." Schools of various counties meet in elimination contests; sectional debates follow; and ulti-

mately the state championship is determined, the entire series being modeled on championship contests in basket ball and other sports.

Such a program is extremely questionable from both educational and ethical standpoints. Perhaps least important is the fact that people who ought to know better lead children to deal with questions which are totally beyond their maturity. Such procedure violates the first fundamental of good thinking and speaking, namely, that the speaker shall be intimately acquainted with the topic under discussion and with related topics. When high-school pupils rely on themselves for the organization and substance of addresses on abstruse topics, their efforts result either in silly twaddle or in slavish plagiarizing of discussions which they do not understand.

The truth is that in scholastic debates the pupils very commonly do not depend on themselves. Teachers assume the obligation of turning out winning teams. To a certain extent the reputations of the coach and the school depend on the showing made by the representatives. Teachers draw up briefs on the assigned topic and send them to experts for criticism and suggestions. On the basis of the information received, the teachers, not the pupils, write the "speeches," which the pupils learn and present, ostensibly as original arguments but really as declamations.

Such contests have little educational value. Training in self-control, poise, and fluency, sometimes claimed as a result, is too often offset by the pupils' grossly exaggerated ideas of their own powers and by the undue weight often given in the pupils' minds to the mere externals of speaking. Even more reprehensible is the intellectual dishonesty which the schools themselves foster and of which they, not the pupils, are primarily guilty.

If we must have interscholastic debates, they should deal with simple topics within the range of the participants. The pupils, winners or losers, should be dependent from first to last on their own resources. Under any conditions, however, "championships" in debate are probably undesirable.

THE ACCURACY OF GROUP-TEST MENTAL AGES AND INTELLIGENCE QUOTIENTS OF JUNIOR HIGH SCHOOL PUPILS

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The accuracy with which group intelligence tests measure the intelligence of pupils in the junior high school must be known if such tests are used (1) to reveal whether or not the pupils' scholastic achievements are all that may reasonably be expected of them or (2) to aid in dividing a class into homogeneous sections. In using group intelligence tests for either of these purposes, we need to know more than merely how closely one group test agrees with another in measuring individuals, because the accuracy of one test cannot be determined by finding the extent of its agreement with another test the precision of which is also unknown;[1] yet this is the method which has been used in some of the studies purporting to determine the accuracy of group-test ratings of junior high school pupils.

To secure more exact information on the precision of group intelligence tests (1) as measures of pupil ability and (2) as a basis for classification, the following tests were given in the following order to the 108 pupils entering the first year of a junior high school in Baltimore: Miller, Form A; Otis (self-administering), Form A; Illinois, Form A; Terman, Form A; Haggerty, Delta 2; National, Scale A, Form 1; Dearborn Revised, C; Dearborn Revised, D; Pintner, non-language. The Stanford-Binet test and one-half of the group tests were given by the writer, the others being given by a person

[1] The following reports of investigations bear more or less intimately on this problem: F. S. Breed and E. R. Breslich, "Intelligence Tests and the Classification of Pupils," *School Review*, XXX (January and March, 1922), 51–66, 210–26. Raymond Franzen, "Attempts at Test Validation," *Journal of Educational Research*, VI (September, 1922), 145–58. A. I. Gates, "The Unreliability of M.A. and I.Q. Based on Group Tests of General Mental Ability," *Journal of Applied Psychology*, VII (March, 1923), 93–100. Walter S. Guiler, "How Different Mental Tests Agree in Rating Children," *Elementary School Journal*, XXII (June, 1922), 734–44. W. S. Miller, "The Variation and Significance of Intelligence Quotients Obtained from Group Tests," *Journal of Educational Psychology*, XV (September, 1924), 359–66.

trained under his supervision to give them. The testing conditions were good. The tests were given one or two a week during a period of six weeks. The effect of practice was largely eliminated by giving achievement tests before beginning the program of intelligence testing.

To determine how accurately a group intelligence test measures the intelligence of a pupil, we need to have some standard measure or *criterion* of his intelligence with which to compare his group-test score. What is the best criterion of a pupil's intelligence? This is a question which still continues to vex the makers and users of intelligence tests and remains without an entirely satisfactory answer. The writer has used three criteria of a pupil's intelligence. (1) The mean of his intelligence ratings on the nine group tests and the Stanford-Binet test, the latter weighted 9 and each of the former weighted 1. The weighting is arbitrary, being suggested by differences in reliability, type of test elements, etc. The weighted mean mental age (or I.Q.) is hereafter referred to as the composite mental age (or I.Q.) according to the *first criterion of intelligence.* (2) His Stanford-Binet rating is used as a *second criterion of intelligence.* (3) The mean of his I.Q. on the Stanford-Binet test, his mean I.Q. on the nine group tests, and the mean of the intelligence ratings given by three teachers who had taught him for five months in the junior high school, the Stanford-Binet I.Q. weighted 2, the mean I.Q. on the nine group tests weighted 2, and the mean of the ratings of the three teachers weighted 1. This is his intelligence quotient according to the *third criterion of intelligence;* it is probably more satisfactory than are the other two.

The deviations were found of each child's mental age and I.Q. on each group test from his composite mental age and I.Q., respectively, according to the first criterion of intelligence; then the mean, range, range of the middle 50 per cent, and Q of the deviations were determined. The results are shown in Tables I and II.

The mean composite mental age of the class was 13 years and 1 month, with a semi-interquartile range of 11.5 months; the mean I.Q. was 100.4, with a semi-interquartile range of 11.4 points.

The group-test mental ages range from 64 months greater to 49 months less than the composite mental ages. On the average, they

were in error 12.36 months, whereas the group-test I.Q.'s were in error 7.81 points according to the first criterion of intelligence. The degree of accuracy of these tests is seen further in the fact that the

TABLE I

MEAN, RANGE, RANGE OF MIDDLE 50 PER CENT, AND Q OF DEVIATIONS OF GROUP-TEST MENTAL AGES (IN MONTHS) FROM COMPOSITE MENTAL AGES ACCORDING TO THE FIRST CRITERION OF INTELLIGENCE FOR 108 FIRST-YEAR JUNIOR HIGH SCHOOL PUPILS

Group Test	Mean	Range	Range of Middle 50 Per Cent	Q
Miller	16.62	−49 to 45	−3 to 22	12.5
Otis	14.82	−36 to 58	−5 to 18	11.5
Illinois	9.22	−39 to 31	−10 to 8	9.0
Terman	8.56	−15 to 32	−1 to 12	6.5
Haggerty	9.40	−32 to 38	−4 to 10	7.0
National A	10.24	−15 to 44	−2 to 13	7.5
Dearborn C	10.19	−29 to 33	−7 to 11	9.0
Dearborn D	10.52	−29 to 34	−3 to 14	8.5
Pintner	21.67	−44 to 64	3 to 32	14.5
Mean	12.36	−32.0 to 42.1	−3.6 to 15.6	9.56

TABLE II

MEAN, RANGE, RANGE OF MIDDLE 50 PER CENT, AND Q OF DEVIATIONS OF GROUP-TEST I.Q.'S FROM COMPOSITE I.Q.'S ACCORDING TO THE FIRST CRITERION OF INTELLIGENCE FOR 108 FIRST-YEAR JUNIOR HIGH SCHOOL PUPILS

Group Test	Mean	Range	Range of Middle 50 Per Cent	Q
Miller	10.53	−20 to 36	−2 to 16	9.0
Otis	9.87	−23 to 42	−3 to 12	7.5
Illinois	5.77	−24 to 20	−7 to 6	6.5
Terman	5.54	−10 to 26	0 to 9	4.5
Haggerty	5.03	−15 to 23	−3 to 7	5.0
National A	6.58	−11 to 30	−2 to 8	5.0
Dearborn C	6.23	−19 to 19	−5 to 7	6.0
Dearborn D	6.65	−21 to 19	−2 to 9	5.5
Pintner	13.07	−22 to 37	2 to 19	8.5
Mean	7.81	−18.3 to 28.0	−2.4 to 10.3	6.4

range of the middle 50 per cent of the I.Q. deviations on one test is from −7 to +6 points, whereas on another test it is from +2 to +19 points. Similarly, one-half of the mental ages on one group test range from 10 months below to 8 months above the composite mental

ages, but on another test the range is from +3 to +32 months. It appears from these data that, on the average, one half of the group-test mental ages range from 3.6 months below to 15.6 months above the composite mental ages, the other half of them being in error by amounts outside of these limits; that the group-test I.Q.'s in one half of the cases range, on the average, from 2.4 points below to 10.3 points above the composite I.Q.'s, being less accurate in the other half of the cases. The significance of the tests for different purposes involves the consideration of such inaccuracies as these.

TABLE III

ACCURACY OF GROUP-TEST I.Q.'S CALCULATED FROM GUILER'S DATA*

Group Test	Mean Deviation	Range of Deviations	Range of Middle 50 Per Cent of Deviations	Q of Deviations
National A and B.....	7.35	−24 to 18	−10 to 4	7.0
Illinois.....	8.48	−14 to 27	−3 to 12	7.5
Pintner.....	18.52	−19 to 43	5 to 26	10.5
Mean (National A and B weighted 2).....	10.43	−20.3 to 26.5	−4.5 to 11.5	8.0

* Walter S. Guiler, *op. cit.*, 736–37.

The relative accuracy of the nine group tests can be seen from Tables I and II. The Terman, the Haggerty, and the National tests are slightly more accurate than are the other tests according to the first criterion of intelligence.

For comparison with the results shown in Table I, the writer calculated the weighted mean I.Q.'s from Guiler's data on sixty-three pupils in Grades VI, VII, and VIII, weighting Stanford-Binet 9, National A1 and B1 2, Illinois 1, and Pintner 1, and found the deviation of the I.Q. of each individual on each group test from his composite I.Q. The group-test I.Q.'s are slightly less accurate according to Guiler's data (Table III) than according to the data of the writer.

The writer tried to find out which pupils are measured least accurately by a group intelligence test, but he cannot make a conclusive statement on the basis of his data. There is some evidence indicating that the brighter pupils are measured less accurately and the older pupils (chronologically) more accurately, but it is too meager

to be final. The Pearson coefficient of correlation between composite I.Q.'s and the deviations of group-test I.Q.'s from composite I.Q.'s is .459, P.E. .051; between chronological age and I.Q. deviations on group tests, −.442, P.E. .060.

How accurate is the classification by intelligence if the pupils are sectioned on the basis of the results of a group intelligence test? As three criteria of correct sectioning by I.Q.'s, the writer used the assignment of the 108 pupils (1) to three sections on the basis of the I.Q.'s from the first criterion of intelligence, (2) to three sections on the basis of the Stanford-Binet I.Q.'s, and (3) to three sections on the basis of the I.Q.'s from the third criterion of intelligence, making a few readjustments, such as a junior high school principal would make, on account of marked differences in chronological ages and in order to place approximately one-third of the boys and one-third of the girls in each section (for shop, cooking, sewing, etc.).

The 108 pupils were then placed in three sections according to the I.Q.'s from each group test. Each of the nine classifications was then compared with the classification on the basis of each of the three criteria of intelligence to see how closely they agreed. On the average, 68.1 per cent of the pupils are correctly classified by the I.Q.'s from a group test, that is, are placed in the same section by the I.Q.'s from a group test as by the composite I.Q.'s from the first criterion of intelligence; 30.9 per cent are displaced one section, that is, are placed one section above or below the one to which they would be assigned by the composite I.Q.'s; and 1.0 per cent are displaced two sections[1] (Table IV). In a threefold classification displacement by one section may not be a serious error, but displacement by two

[1] The accuracy of sectioning by the mental ages from each group test was determined by comparison with the two criteria of correct classification by mental age, with the following results: First criterion: on the average, 63.1 per cent are correctly classified by the mental ages from a group test; 33.5 per cent are displaced one section; and 3.4 per cent, two sections. Second criterion: the mental ages from a group test give, on the average, 56.0 per cent correct classification, 38.5 per cent displacement by one section, and 5.5 per cent displacement by two sections. With but two exceptions, group I.Q. classification agrees with its criteria more closely than group mental age classification agrees with its criteria. In another study the writer found group I.Q.'s predicting junior high school scholarship somewhat more accurately than did raw scores or mental ages. Accordingly, no further reference is made to mental ages, and the data are omitted from the remaining tables.

sections is very serious, because a pupil who belongs to the top section is thus placed in the lowest section, or a pupil who belongs to the

TABLE IV

AGREEMENT OF CLASSIFICATION OF 108 JUNIOR HIGH SCHOOL PUPILS BY GROUP-TEST I.Q.'S WITH CLASSIFICATION BY I.Q.'S FROM THE FIRST CRITERION OF INTELLIGENCE

Group Test	Percentage Correctly Classified	Percentage Displaced One Section	Percentage Displaced Two Sections
Miller	58.3	40.7	0.9
Otis	78.7	20.4	0.9
Illinois	71.3	27.8	0.9
Terman	71.3	27.8	0.9
Haggerty	70.4	29.6	0.0
National A	75.0	24.1	0.9
Dearborn C	69.4	29.6	0.9
Dearborn D	58.3	40.7	0.9
Pintner	60.2	37.0	2.8
Mean	68.1	30.9	1.0

TABLE V

AGREEMENT OF CLASSIFICATION OF 108 JUNIOR HIGH SCHOOL PUPILS BY GROUP-TEST I.Q.'S WITH CLASSIFICATION BY STANFORD-BINET I.Q.'S

Group Test	Percentage Correctly Classified	Percentage Displaced One Section	Percentage Displaced Two Sections
Miller	53.7	42.6	3.7
Otis	65.7	31.5	2.8
Illinois	66.7	31.5	1.8
Terman	63.0	35.2	1.8
Haggerty	63.9	35.2	0.9
National A	67.6	29.6	2.8
Dearborn C	56.5	42.6	0.9
Dearborn D	54.6	42.6	2.8
Pintner	54.6	40.7	4.6
Mean	60.7	36.8	2.5

lowest section is placed in the highest section. Comparing the threefold classification by the I.Q.'s from each group test with the classification by the I.Q.'s from the Stanford-Binet test, we find that on the average 60.7 per cent of the pupils are correctly classified by the I.Q.'s from a group test; 36.8 per cent are displaced one section; and 2.5 per cent, two sections (Table V).

A comparison of classification by the I.Q.'s from each group test with classification by the composite I.Q.'s from the third criterion (Stanford-Binet test, nine group tests, and teachers' estimates) shows, on the average, 66.1 per cent of the pupils correctly classified, 32.9 per cent placed one section above or below the one to which they belong, and 1.0 per cent placed two sections from the correct one (Table VI). According to these data, the Otis, the National, and the Haggerty tests yield the most accurate classifications; the Miller and the Pintner tests, the least accurate classifications.

TABLE VI

AGREEMENT OF CLASSIFICATION BY GROUP-TEST I.Q.'S WITH CLASSIFICATION BY COMPOSITE I.Q.'S FROM THE STANFORD-BINET TEST, NINE GROUP INTELLIGENCE TESTS, AND TEACHERS' ESTIMATES (N = 108)

Group Test	Percentage Correctly Classified	Percentage Displaced One Section	Percentage Displaced Two Sections
Miller	58.3	40.7	0.9
Otis	73.2	25.9	0.9
Illinois	67.6	31.5	0.9
Terman	67.6	31.5	0.9
Haggerty	68.5	31.5	0.0
National A	70.4	27.8	1.8
Dearborn C	64.8	35.2	0.0
Dearborn D	63.9	35.2	0.9
Pintner	60.2	37.0	2.8
Mean	66.1	32.9	1.0

What is the practical significance of the data of Tables IV–VI? The true significance of classification by a group intelligence test is seen only by comparison with classification on other possible bases.

If a junior high school principal attempted to divide an entering class into three sections, homogeneous with respect to intelligence, without knowing anything about any pupil's ability, picking at random one-third of the class to form the highest section, another third for the middle section, and the remainder for the lowest section, his classification would, in the long run, be erroneous to the following extent: 33.3 per cent of the pupils would be correctly classified; 44.4 per cent would be placed one section above or below the proper one; 22.2 per cent would be placed two sections above or below the proper one.

We have seen that classification by a group test gives, according to the first and the third criteria, 67.1 per cent correct classification, 31.9 per cent displacement by one section, and 1.0 per cent displacement by two sections; that is, a group test doubles the amount of correct classification, reduces by one-fourth the number of pupils displaced one section, and practically eliminates such serious errors of classification as placing top-section pupils in the lowest section, reducing the percentage displaced two sections from 22.2 to 1.0.

If, however, chronological ages were used instead of a group intelligence test as the basis of classification and the youngest pupils

TABLE VII

AGREEMENT OF SECTIONING ON VARIOUS BASES WITH SECTIONING BY THE FIRST AND THE THIRD CRITERIA OF INTELLIGENCE

Basis of Sectioning	Percentage Correctly Classified	Percentage Displaced One Section	Percentage Displaced Two Sections
Chance	33.3	44.4	22.2
Group I.Q.*	67.1	31.9	1.0
Chronological age	57.0	39.8	3.2
Sixth-grade marks	60.7	34.2	5.1
Chronological age and sixth-grade marks	63.0	35.2	1.8

* The mean of the percentages from the nine group tests.

were placed in the highest section, the next youngest in the middle section, and the oldest in the lowest section, we would expect a more accurate classification by intelligence than if the sectioning were done by chance, because the younger pupils of a grade are often the abler pupils. The data in this respect indicate that 57.0 per cent of the pupils would be placed in the same section by chronological age as by the first and third criteria of intelligence, that 39.8 per cent would be displaced one section, and that 3.2 per cent would be displaced two sections. This is indeed remarkable.

Classification by sixth-grade school marks gives a still more accurate division of the class. Using the first and the third criteria of intelligence, we find that 60.7 per cent of the pupils are correctly classified by their sixth-grade marks; 34.2 per cent are placed one section too low or too high; and 5.1 per cent, two sections too low or too high; whereas a combination of sixth-grade marks and chronological ages gives 63.0 per cent correct classification, 35.2 per cent

displacement by one section, and 1.8 per cent displacement by two sections (Table VII).

The superiority of the group-test I.Q. as a means of classification by intelligence is easily seen, but chronological ages and sixth-grade marks, in this case from five different elementary schools, are also of considerable value. In fact, if the principal of a junior high school used sixth-grade marks and chronological ages in sectioning an entering class, he would, according to these data, secure as accurate classification by intelligence as if he had used any one of the four least accurate group intelligence tests; but he would secure a much less accurate sectioning than if he had used the Otis or the National test. Sixth-grade marks add very little to the accuracy of the most accurate tests but add considerably to the accuracy of some of the less accurate ones. For example, the percentages on the Otis I.Q. are 76.0, 23.1, and 0.9; the Otis I.Q. and the sixth-grade marks give 76.0, 24.0, and 0.0; the Miller I.Q. gives 58.3, 40.7, and 0.9; the Miller I.Q. and the sixth-grade marks give 72.3, 27.7, and 0.0.

CONCLUSIONS

For the purpose of investigating the accuracy of group intelligence tests both as measures of intellectual ability and as means of sectioning junior high school pupils, the Stanford-Binet test and nine group tests were given to the 108 pupils entering a junior high school in Baltimore at the middle of the year. The following conclusions may be drawn, although further intensive studies are needed to show the accuracy of these and other group intelligence tests under other conditions.

1. On the average, a pupil's group-test mental age is found to be in error 12 months. The middle 50 per cent of the mental ages range from 3.6 months less to 15.6 months more than the probably true mental ages. The mean error of the most accurate group test in measuring mental age is 8.6 months, and the middle 50 per cent of the mental ages derived from this test range from 1 month less to 12 months more than the probably true mental ages.

2. Group-test I.Q.'s have a mean error of 7.8 points. The middle 50 per cent of the I.Q.'s range from 2.4 points below to 10.3 points above the probably true I.Q.'s. The mean error of the most accurate

of the nine tests is 5.5 points, and the range of the middle 50 per cent of the deviations is from 0 to 9 points.

3. Sectioning by group I.Q. agrees with sectioning by composite I.Q. more closely than sectioning by group mental age agrees with sectioning by composite mental age.

4. A group intelligence test gives a fairly accurate threefold classification by intelligence. According to the first and the third criteria of intelligence, 67.1 per cent of the pupils are correctly classified by the I.Q.'s from a group test; 31.9 per cent are placed one section too high or too low; 1.0 per cent are placed two sections too high or too low. In the case of the most accurate test 75.9 per cent of the pupils are correctly classified; 23.1 per cent are displaced one section; 0.9 per cent are displaced two sections.

5. Sectioning by chronological age (placing the youngest in the highest section, the next youngest in the middle section, and the oldest in the lowest section) results in 57.0 per cent correct classification, 39.8 per cent displacement by one section, and 3.2 per cent displacement by two sections.

6. Sixth-grade school marks give more accurate classification by intelligence than does chronological age, 60.7 per cent of the pupils being correctly classified, 34.2 per cent being displaced one section, and 5.1 per cent being displaced two sections.

7. Combining sixth-grade marks and chronological age gives almost as accurate classification by intelligence as does the average group intelligence test, 63.0 per cent of the pupils being correctly classified, 35.2 per cent being displaced one section, and 1.8 per cent being displaced two sections.

8. Combining sixth-grade marks with the I.Q.'s from the less accurate group intelligence tests, such as the Miller, increases the accuracy of classification by intelligence, but sixth-grade marks do not add much to the precision of the more accurate tests, such as the Otis or the National.

WHAT THE COLLEGES ARE DOING FOR THE SECONDARY SCHOOLS

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Since 1918 those who are vitally concerned with secondary schools have been aware of the growth and development of pupil participation in school government. Principals of high schools, faculty members, and pupils have been showing their interest in this phase of education by writing and talking about it. Few people, however, are aware of the interest that college women are exhibiting in student participation in the government of secondary schools.

For eighteen years the women's student-government bodies in the colleges of the East have been united in the Women's Intercollegiate Association of Student Government; those in the southern colleges, in the Southern Intercollegiate Association of Student Government. Delegates from the colleges and universities in these associations have met annually to discuss their student-government problems. A few years ago, while discussing the difficulties of training Freshmen in the ideals and methods of student government, the delegates came to realize that it would be a tremendous advantage if the students new in the colleges had experienced the responsibilities and privileges of self-government in the high schools and preparatory schools from which they had graduated. As the result, the two intercollegiate associations began independently the work of extending student participation in government in secondary schools. For a few years the Women's Intercollegiate Association of Student Government carried on its activities in the East, and the Southern Intercollegiate Association of Student Government worked in the South.

It soon became apparent that there were disadvantages in having this work done by undergraduates who must, at the same time, keep up their scholastic work and extra-college activities. Therefore, the two associations combined to create an extension department with an employed graduate secretary to direct the work in both fields.

Soon the purpose of the work became broader, an effort being made to help all pupils to develop a sense of honor and good citizenship regardless of college attendance. This department became a reality in the autumn of 1925. It was necessary, of course, to limit the territory in which the work was to be conducted. The activities were therefore restricted to those states in which at least one college or university is a member of one of the intercollegiate associations. At present this means that we are working to develop student government in the following states: Alabama, Arkansas, Connecticut, Florida, Georgia, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, and West Virginia.

In beginning this work, the department recognized that there is a difference between college student government and high-school student government due to the difference in the ages of the students and to the fact that the majority of college students are boarding students, living together in dormitories or houses, while the majority of secondary-school pupils are day pupils. The fact that student government had proved invaluable to the colleges was not proof that it was desirable for secondary schools; yet the same fundamental principles of good executive, legislative, and judicial government can be worked out and applied in any school regardless of the age of the pupils. The results of student government should be the same in high schools as in colleges. It should foster the proper school spirit, develop the students' sense of honor and responsibility, and teach them the beginnings of good citizenship. Although the department hopes to help the secondary-school pupils, in the end they will also help the colleges. Already we find the boys and girls who were trained by self-government in high school taking an active part in the government of the colleges which they attend. Twice within the last few years a student who acted as prefect in the Evansville Central High School has been president of the student body at Indiana University. The student-government officials at the Randolph-Macon Institute have almost invariably become excellent members of the Student Committee at the Randolph-Macon Woman's College. The principal of a girls' preparatory school in New

Orleans said, "I feel that student government is by far the best method of school government; it certainly better prepares girls for the freedom of control they meet in college."

Our work consists in corresponding with the secondary schools in the states listed. When a school is sufficiently interested, we try personally to help it to organize student government. We have corresponded with approximately one hundred schools that have already developed some form of student participation and found it successful. The information and suggestions that we have to offer are compiled into the form which will be most useful to the school applying for aid. We are not promoting a special plan or set organization to be adopted by every school; rather we hope to inspire principal, faculty, and pupils to work out the type of student government which will best fit the particular school.

Because of the many different ways in which pupils may help to regulate school activities, it would be unreasonable to try to promote any one plan. Furthermore, there are various degrees of pupil authority found in secondary schools. First, there is absolute pupil government without faculty or principal veto power. Then, there is the community plan in which teachers and students have equal vote and almost equal authority. Lastly, there are numerous schools which are governed by student councils made up of class or homeroom representatives. A faculty adviser sits with this council but has no vote. The principal, however, has veto power.

Although the extension department does not advocate any special form of organization, it indorses a few general principles to be observed in establishing student participation in government. The beginning of pupil authority should be small and the growth gradual. Student government should result from the enthusiastic desire of the pupils themselves with the sympathetic guidance of the teachers and the principal. The department especially emphasizes the importance of what is poorly named an "honor system." We believe that as soon as possible the pupils should be placed on their honor to obey the necessary laws. The importance of proctors and policemen should be minimized and the importance of individual responsibility emphasized. The pupils should be educated so that they can be trusted. It should be the aim of every student-government association to create

and maintain the highest standards of honor. This ideal cannot be instilled in a student body without effort; it takes patient education, but the results are worth years of work.

As for the general attitude toward student participation in government in secondary schools, we have found in nearly every state of our territory a decided interest on the part of the state supervisor of secondary education. Frank P. Morse, state supervisor of Massachusetts, has made a complete record of the amount of student participation in all the high schools of that state. He feels that the subject of student participation in government is of very great importance, and he gives our work his approval. Josiah W. Taylor, agent for secondary education in Maine, has worked out a plan of community government especially designed for small high schools. It is offered merely as a help to schools which are interested in developing student participation. Mr. Taylor has shown his interest in the work of the extension department by allowing it to reprint this community plan and send it to schools which apply for information along this line. James Sullivan (New York supervisor) and Mr. Morse favor a simple form of government rather than the more elaborate city or state plans adopted by some of the large high schools. Their objection is that the multiplicity of offices and departments produces an artificiality which makes the pupils lose sight of the principles behind the government. It is too much like playing at government instead of developing individual responsibility and ideas of good citizenship. The state supervisors of secondary education in Alabama, Arkansas, Connecticut, Florida, Georgia, Kentucky, Louisiana, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, and West Virginia have expressed their interest in this work. The supervisors in Florida, Massachusetts, New York, Pennsylvania, and West Virginia have especially stated their belief that our work should be for the development of student participation in government rather than for the development of pupil control.

Among the principals of the high schools one finds a wide range of opinions. At one extreme is the principal who says that "one must be cunning enough to let the pupils think they are governing themselves and still keep a close watch over the system. In fact, I do

not believe that student government will work in the high school." At the other extreme is the principal who states, "I most heartily recommend student government to any school system." Almost without exception, the principals in the high schools in which student participation in government exists are in full sympathy with it. They feel that the student council is invaluable in giving them student opinion and that student management of school affairs is a distinct help to the school. They have found that the success of student government varies with the type of leaders that the upper classes afford, and the majority of them realize the need of a sympathetic and enthusiastic faculty adviser. One interesting fact to be noted is that no school is perfectly satisfied with its form of student government. All welcome suggestions for improvement and are eager for information about the types of government in other schools. The requests for our booklets from schools which have established student government are almost as numerous as the requests from schools which hope to develop this type of organization.

Because of the trend of modern thought and because of the nature of the government of our country, student participation in the government of our schools is certain to continue to grow. When we look into the future, we can see the possibility of all the secondary schools using this method of management. The Extension Department of the Intercollegiate Associations may not always be needed, therefore, but it will be glad if it can play even a small part in bringing about the development of student participation in government in the secondary schools of this country.

AN EXPERIMENT IN MARKING

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The existing literature on marking leaves the average teacher in a confused state of mind. On the one hand are the many studies seeming to show that the marks of most teachers are unreliable, full of constant and variable errors. On the other hand we find many suggestions concerning the use of probability. There are also many standard tests which the teacher might use and from which he might deduce principles with which to construct his own tests. To take advantage of the principles of measurement now in existence requires a theoretical and technical background which the average teacher does not possess.

A year ago a student teacher in one of the writer's classes made the remark, "When I came into this class, I thought I knew what a mark was; now I don't." The experiment here described was conducted for the purpose of developing a scheme and exemplifying principles which the average teacher might use in employing the crude instruments which he has at hand.

The laboratory consisted of four classes made up of a total of 112 college Seniors studying high-school methods: autumn, 1924, 39 students; winter, 1925, 20 students; summer, 1925, 21 students; autumn, 1925, 32 students.

One of the first things done by a maker of a standard test is to analyze the subject to find the abilities which will be needed by the pupil and which therefore must be measured by the test. The writer decided to attempt to measure four abilities: (1) ability to learn and retain facts and principles in an organized form, (2) ability to interpret and apply facts and principles, (3) ability in social discussion, and (4) ability in independent investigation.

A textbook was used as a central core, and daily lessons were assigned. In the assignments the students were told to learn the facts in an organized form, that is, to associate chapters, chapter parts, paragraphs in a chapter, and points made by the author in a

paragraph. The students also understood that they might expect a short fact test any day without warning. From fifteen to twenty-five of these tests were given each quarter in such a manner that the students were forced to study each day in order to make a fair average. The following is a sample fact test.

I. The author tabulates the ultimate and proximate aims of education as follows:

1. _____ 1. _____
   a) _____ 2. _____
   b) _____ 3. _____
   c) _____ 4. _____
2. _____ 5. _____
3. _____

11 points

II. 1. Information has been overemphasized, because _____

_____

2. As a result of this overemphasis, we often find _____

_____

2 points

III. In developing ideals, there are four considerations to be kept in mind:

1. _____
2. _____
3. _____
4. _____

4 points

Total 17 points

In order that the personal element in scoring might be eliminated, each student was assigned a number which he used instead of a name, and the tests were scored not by the instructor but by a person who did not know the students to whom the numbers belonged.

In order to secure as high objectivity as possible, a point system was used, as indicated in the sample test. A point was given for each correct idea. In case the answer was not clear, the student was given the benefit of the doubt, and a half-point was assigned. This allowed for judgment and made for subjectivity, but it was believed that such errors as thus entered would balance in a series of from fifteen to twenty tests. The total scores were then distributed, and the mean was computed. The next day the papers were returned with each question scored and with the total score on the outside. No

marks were placed on the papers. The distribution was put on the board and graded by the instructor by a curve process in the presence of the students. Here, of necessity, judgment and subjectivity entered.

In order to motivate the work as much as possible, the students making the highest scores were given A and those making the highest possible score A+. Furthermore, each student kept a progress chart, on which his own curve and the class curve were extended from test to test.

The averages of the students of each class on the fact tests are

TABLE I

DISTRIBUTION OF THE AVERAGES OF THE STUDENTS IN EACH CLASS ON THE FACT TESTS

Mark	Autumn, 1924	Winter, 1925	Summer, 1925	Autumn, 1925	Total
A	3	5	3	1	12
B	18	9	13	19	59
C	15	5	4	12	36
D	2	1	1	0	4
F	1	0	0	0	1
Total	39	20	21	32	112
Mean	B	B	B	B	B

distributed in Table I. It will be noted that in all the distributions both the mode and the mean are B. This is not surprising when it is considered that a college Senior has been trained for sixteen to eighteen years in the acquisition of facts. It is interesting, however, when attention is called to the fact that in each test the average, or mean, paper was given C and that there were some F's in each test.

The second ability which the writer attempted to measure was that of interpreting and applying facts and principles. In each assignment the students were given a "thought" question to be discussed the next day in class. The answers to these questions were not to be found in any book, although they consisted of interpretation or application of the principles in the text lesson assigned. Four times during the quarter the students were given "thought" tests consisting of questions selected from those assigned daily. The students were encouraged to exhaust each question, to use their imagina-

tion and ingenuity, to be specific, and to organize and present their thought as well as possible. The following are sample questions from these "thought" tests.

I. Describe *specifically* what you will do the first day in some *definite* course with reference to—
   1. Taking steps to acquaint the students with the general plans of the teacher.
   2. Taking steps to acquaint the teacher with the students.
   3. Giving some actual instruction.

II. Describe *specifically* as many ways as possible for distributing your class recitation in some *definite* course so that all students may be called on rather frequently and yet spontaneous interest not be lost.

III. Take a principle, topic, or problem in some *definite* course and describe *specifically* how you would teach it by a problem-solving method.

IV. Describe *specifically* as many ways as possible for making drill in some *definite* course interesting by drilling from different angles.

It will be noted that this is the old essay type of examination. The writer did not feel that the new type of examination would test a college Senior to his full capacity in the matter of application. In the new type of examination the student would be limited; in the type of questions used it was felt that there was no upper limit except that set by the student's ability.

The standards by which their answers were to be judged were made clear to the students: definiteness, specific presentation, feasibility, and clearness of presentation. The students also clearly understood that the standards of scoring and marking would be those set by their fellows, that is, the best was to get the high score and mark; the average, the average score and mark, etc.

The procedure of scoring was as follows: The answers of all the students to the first question were read and compared according to these standards, and the papers were ranked in piles on a table. No effort was made to obtain a certain number of piles. Differences in the answers were sought, and the piles were made accordingly. Each paper in the first pile was then given 8; each paper in the second pile was given 7; each paper in the third pile, 6; etc. The papers were then shuffled; the answers to the second question were ranked in the same manner, and scores were assigned. There was here an opportunity for compensation; the answer made by a student to the first

question would not affect the scorer's judgment of his answer to the second question. After all the questions were scored, each student's scores were added, and the sum was recorded on the paper. The next day a distribution was put on the board, and marks were assigned as in the fact test, that is, average, C; best, A; poorest, F; etc.

The averages of the students in each class on the four thought tests are distributed in Table II. It is interesting to note that there are very few A's and very few F's in these distributions, even though a number of A's and F's were given in the individual tests. This would seem to indicate that very few of these college Seniors had the ability of application to such a high extent that they could surpass

TABLE II

DISTRIBUTION OF THE AVERAGES OF THE STUDENTS IN EACH CLASS ON THE FOUR THOUGHT TESTS

Mark	Autumn, 1924	Winter, 1925	Summer, 1925	Autumn, 1925	Total
A	1	0	0	1	2
B	6	6	7	13	32
C	20	10	11	14	55
D	8	3	3	4	18
F	4	1	0	0	5
Total	39	20	21	32	112
Mean	C	C	C	C	C

in enough of the tests to maintain top rank or that they had the ability of application to such a low extent that they remained continuously at the bottom.

Attention may also be called to the fact that in the fact tests both the mean and the mode are B, whereas in the thought tests both are C. In the case of the fact tests it is assumed that the long training in fact acquisition accounts for the high average. In the thought tests, on the other hand, no upper limit was set, except that of each student's ability, the questions themselves being in most instances inexhaustible.

The third ability which the writer attempted to measure was called in the first part of this article, "ability in social discussion." The recitation was a discussion, guided by the teacher, of the questions of application assigned each day and afterward used in the

thought tests. Therefore, the recitation required ability in social thinking. The test was an attempt to measure interest. Most teachers have a desire to "grade" interest. Some definitely attempt to do so. Some maintain that they do not "grade" interest but only the results. The writer is convinced that the student's interest as manifested in class affects the estimates of the teacher whether he wishes it or not. Furthermore, the writer believes that some attempt should be made to give credit for interest or discredit for lack of interest. Therefore, the students in these classes were told that they would be rated on two phases of their participation in class discussions: whether they voluntarily participated in the discussions and whether, in the teacher's judgment, they made worth-while contributions to the discussions. It was frankly admitted that the mark would represent merely the impression that the student made on the teacher. The students were encouraged to try to make good impressions, and they were frequently shown their marks so that they might know whether they were making such impressions.

The marks were arrived at as follows: Four or five times during the quarter the teacher took his class cards and compared the individuals, seeking differences in the quality of their discussions (recitation) and in their general attitude (interest). The cards were ranked in five piles. Those in the first pile were given A; those in the second pile, B; those in the third pile, C; those in the fourth, D; those in the fifth, F. The writer admits that these were unreliable marks, being wholly subjective. Though crude, it was at least a definite and conscious attempt to measure an intangible quality that often indefinitely and unconsciously affects a student's mark. The averages of the students in each class on ability in social discussion are distributed in Table III.

The fourth line of measurement dealt with ability in independent investigation. In this case each student was required to write a term theme involving library research. Weekly reading reports and inspection of notes were required. One day each week was devoted to general discussion of the themes, floor talks on parts of them, presentation of briefs, and questions and suggestions. The standards on which the themes were to be judged were made clear to the students: breadth and comprehensiveness of the bibliography used; logical

clearness of the outline; assembling, critical analysis, and convincing presentation of the sources; and the degree to which definite conclusions were reached. In order that the personal element might be

TABLE III

DISTRIBUTION OF THE AVERAGES OF THE STUDENTS IN EACH CLASS ON ABILITY IN SOCIAL DISCUSSION

Mark	Autumn, 1924	Winter, 1925	Summer, 1925	Autumn, 1925	Total
A	2	3	4	5	14
B	13	11	9	12	45
C	17	4	7	9	37
D	5	1	1	6	13
F	2	1	0	0	3
Total	39	20	21	32	112
Mean	C	B	B	B	C

TABLE IV

DISTRIBUTION OF THE MARKS OF THE STUDENTS IN EACH CLASS ON ABILITY IN INVESTIGATION

Mark	Autumn, 1924	Winter, 1925	Summer, 1925	Autumn, 1925	Total
A	5	3	5	5	18
B	15	7	8	12	42
C	15	8	6	12	41
D	4	1	1	3	9
F	0	1	1	0	2
Total	39	20	21	32	112
Mean	B	B	B	B	B

eliminated, each theme carried a nom de plume instead of the student's name. The themes were read, and differences in quality along the lines indicated were sought. The themes were ranked in piles and marked A, B, C, D, and F. The distributions of the marks of the students in the various classes are shown in Table IV.

We have described the method of dealing with each separate ability and have shown the distributions for the individual classes. Table V summarizes the four distributions of the 112 cases. This table also includes the final marks assigned. All these distributions seem quite probable for college Seniors. Considering the elimination of the poorer students that has occurred from the eighth grade of

the high school on through the freshman and sophomore years of college, one would expect a top-heavy distribution in almost any set of scores. It is to be noted that this left skewness is especially noticeable in the fact tests and term theme, activities in which college students have had long and specialized training. It is less evident in the recitation, since college students have been accustomed to lecture courses, and in the thought tests, in which they have had very little training.

It might be asked: What is the relation between these abilities? The original scores were correlated by the product-moment method, and the correlations were found to be as follows:

Facts and thought	$.43 \pm .05$
Thought and term theme	$.38 \pm .05$
Facts and term theme	$.36 \pm .05$
Thought and recitation	$.26 \pm .06$
Recitation and term theme	$.23 \pm .06$
Facts and recitation	$.17 \pm .06$

We thus find positive relationships in every case. We might naturally expect from our knowledge of human nature that a person who could do at all well in one of these abilities would be able to do something in another and that a person who could do nothing in one would do poorly in another. It might be significant to note that the correlations between facts, thought, and term theme seem to be higher than those in any other groupings. However, we do not find exceptionally high correlations in any case. In fact, the results of standardized testing demonstrate the likelihood that a pupil's performances will vary in activities requiring different abilities. The purpose of this experiment was to devise a scheme for measuring the different abilities of the individual student and to provide an opportunity for compensation. These comparatively low correlations help somewhat to validate the results.

In the last column of Table V are found the term marks. A student's term mark was obtained as follows: The average of his fact-test marks, the average of his thought-test marks, the average of his recitation marks, and his term-theme mark were averaged to obtain his final mark. The writer has been asked whether all four abilities are of equal importance. There is no scientific means of knowing.

According to the writer's judgment, they are approximately equal. Any weights given to them would be just as liable to error. Furthermore, it has been pointed out that averages of averages are not accurate. In reply, it might be said that the averages were obtained by giving a value of ten points to the class intervals and using the midpoint of the interval for computation. The writer believes that making one average of all the marks would be a tedious job not worth while, for in but a minimum number of cases would the calculation be likely to alter the final mark five points.

It was felt that a criterion was needed to validate the term marks. Therefore, the marks that each student made in his other classes

TABLE V

DISTRIBUTION OF THE AVERAGE MARKS OF THE STUDENTS IN ALL FOUR CLASSES

Mark	Fact Tests	Thought Tests	Recitation	Term Theme	Term Mark
A	12	2	14	18	3
B	59	32	45	42	64
C	36	55	37	41	39
D	4	18	13	9	4
F	1	5	3	2	2
Total	112	112	112	112	112
Mean	B	C	C	B	B

during the same quarter were averaged, and the term mark was correlated with this average. The correlation for the group was $.55 \pm .04$. This seems to indicate that the marks arrived at in this group were fair estimates of the students' average ability as measured by their performances in separate abilities.

In conclusion, let us summarize: (1) The course was analyzed into the abilities required. (2) Activities for each ability were chosen. (3) The standards of judgment were made clear to the class. (4) The standards of accomplishment were set by the class. (5) Each activity was tested, scored, and marked separately. (6) The results of each activity were published so that each student knew exactly where he ranked among his fellows and also the degree to which he progressed. (7) Every attempt was made to be impersonal and objective in scoring and marking. (8) The marks in each activity were averaged. (9) The averages were then averaged to obtain the term mark.

READING BOOKS "JUST FOR FUN"

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University of Kansas

A present-day writer has said that in the appraisal of the learning product the vital question is, "What does the pupil do when he is on his own?"[1] As a means of appraising the learning product, Professor Morrison furnishes the pupil with ready access to a liberal amount of material written in French, German, or Latin, as the case may be, and then sees what the pupil does without supervision or requirement. If the pupil reads, this fact is taken as evidence that the real learning product has been obtained. If the pupil does not read, it is inferred that, regardless of test results, the real learning product (adaptation) has not been obtained.

In the study here reported use was made of this basic principle, the aim being to discover what young people do when they are "on their own." It was therefore a study of unsupervised behavior, a study of what pupils do when teacher pressure is removed. No attempt was made to alter the environmental conditions prevailing during leisure hours. The individuals included in the study were simply asked by their teachers to check in a comprehensive list those activities in which they had voluntarily engaged during a given week. Special effort was made to have the pupils understand clearly the type of information that was desired, the teachers employing a uniform series of instructions that had been worked out during the course of several preliminary studies.

Included in the study were pupils from the following schools of Kansas City, Kansas: the Douglass, Hawthorne, Lowell, Morse, and Riverview elementary schools; the Central Junior High School; the Northeast Junior High School; the Kansas City High School; and the Sumner High School. At Lawrence the list was checked in the Quincy and the Pinckney elementary schools, the Lawrence Junior High School, the Lawrence Memorial High School, and the Univer-

[1] H. C. Morrison, *Teaching Technique of the Secondary School.* Ann Arbor, Michigan: Edwards Brothers, 1925.

sity of Kansas. At Bonner Springs and at Moran the list was checked by all the children in the public schools. The distribution of the pupils according to their ages may be seen by reference to Table I.

The schools in Kansas City were selected with a view to obtaining a fair sampling of the school population of the entire city. The Douglass elementary school, the Northeast Junior High School, and the Sumner High School were selected in order to obtain a fair

TABLE I

DISTRIBUTION OF THE PUPILS ON THE BASIS OF THEIR AGES

AGE	BOYS			GIRLS		
	November 7, 1923	February 20, 1924	April 30, 1924	November 7, 1923	February 20, 1924	April 30, 1924
8½.....	98	90	80	100	97	99
9½.....	169	161	144	174	139	144
10½.....	182	169	160	215	199	176
11½.....	187	167	184	235	222	220
12½.....	249	201	176	326	289	266
13½.....	280	231	259	269	235	263
14½.....	274	252	238	301	282	278
15½.....	230	247	247	261	244	256
16½.....	210	181	193	251	223	235
17½.....	145	130	146	182	208	193
18½.....	115	170	130	120	174	167
19½.....	95	119	102	101	115	93
20½.....	50	73	59	73	124	76
21½.....	53	57	43	41	85	66
22 or more...	79	105	68	44	144	88
Total....	2,416	2,353	2,229	2,693	2,780	2,620

sampling of negro children, these schools being attended by negro children only. The Riverview and the Morse schools were selected because the social status and the economic status of the children in these schools were not unlike those of the negro children included in the study. The schools in Lawrence were selected merely with a view to obtaining a fair sampling of the city's school population. The class groups used at the University of Kansas were selected as representative of the institution.

In order that seasonal differences might be taken into account, the list was checked at three different seasons of the year: November 7, 1923; February 20, 1924; and April 30, 1924. The same list of

activities was used on each of the three dates, the only changes being in the foreword of the instructions to the teachers.

The present report will be limited to a presentation of the results obtained in the case of but one of the two hundred items included in the printed list that was checked, namely, "reading books." Table II shows the percentage of pupils at each age-level who indicated that they had been reading books which they were not required to read,

TABLE II

PERCENTAGE OF PUPILS AT EACH AGE-LEVEL WHO INDICATED THAT THEY HAD BEEN READING BOOKS WHICH THEY WERE NOT REQUIRED TO READ

AGE	BOYS			GIRLS		
	November 7, 1923	February 20, 1924	April 30, 1924	November 7, 1923	February 20, 1924	April 30, 1924
8½	80	78	68	81	80	71
9½	78	78	76	84	82	74
10½	80	75	69	80	79	74
11½	77	74	76	76	81	70
12½	77	71	74	80	79	77
13½	71	72	70	83	77	74
14½	66	69	65	75	72	73
15½	69	60	58	76	75	71
16½	63	61	47	68	69	62
17½	52	59	57	57	64	57
18½	49	43	39	46	56	52
19½	49	37	45	44	44	43
20½	46	42	39	26	43	32
21½	30	68	42	51	50	55
22 or more...	49	55	52	43	50	31

that is, reading books just because they wanted to read them. The data contained in Table II are presented graphically in Figures 1 and 2.

Very noticeable is the fact that the results here given are similar from season to season and that sex differences are not especially pronounced. The relatively large decline in voluntary book reading among the pupils of high-school age is rather surprising, particularly in view of the fact that the decline is consistent from season to season and is evident in the case of both boys and girls. In view of the fact that the older individuals included in the study were university students, one might logically have anticipated an increase in voluntary book reading among the individuals of the upper age-levels. Instead, according to their own testimony, slightly less than

50 per cent of them read books that they were not required to read. The writer knows of no valid reason for thinking that the university students included in this study are markedly different from university students in general. What, then, is to be thought of the data presented? So far as their voluntary reading is concerned, are the students of the University of Kansas different from university students in general, or are the facts here presented typical of university students the country over?

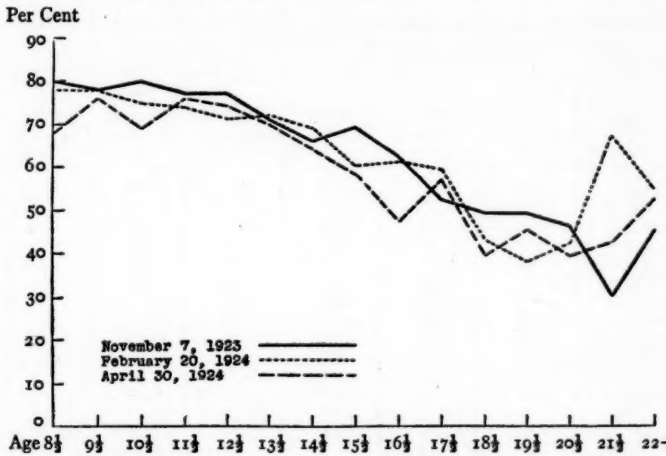

FIG. 1.—Percentage of boys at each age-level who indicated that they had been reading books which they were not required to read.

Possibly it may occur to the reader that the university student's private reading is confined mostly to short stories, newspapers, and the like. A partial answer to this supposition is afforded by inspection of the results obtained for these two items, both of which were included in the list of activities checked by the students. Approximately 90 per cent of the older students—those more than eighteen and one-half years of age—spent some of their leisure time at newspaper reading, but only slightly more than 50 per cent voluntarily engaged in the reading of short stories.

When questioned about the findings, the university students did not deny them. They merely rationalized the facts by mentioning

the large amount of required reading regularly assigned them. In effect, they maintained that the required reading left them little or no time for reading for pleasure. This contention may be a valid argument for some of the university undergraduates, but it probably does not hold for the majority, since it is well known that large numbers of undergraduates find time to attend football games, moving-picture shows, dances, etc. It therefore seems probable that undergraduates are ordinarily able to find time to do those things which

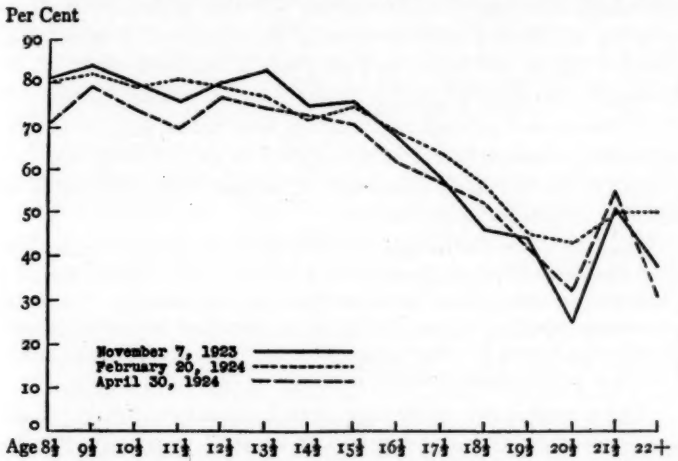

FIG. 2.—Percentage of girls at each age-level who indicated that they had been reading books which they were not required to read.

they really want to do. Clearly, the real explanation for the data secured is to be sought elsewhere than in the testimony of the undergraduates. Even if we assume that a much larger percentage of the undergraduates would really like to read books during their leisure hours and that during their undergraduate years they are too busy to read, is there justification for assuming that, after several years of neglect, they will recover the habit of reading books for pleasure? Surely the demands on the time of the graduate are no less than those made on the time of the undergraduate.

All the university students included in this study had at some time received credit for "courses" in English. They had presumably

acquired some appreciation of literary values. Can it be that the results here presented are an indication, however crude, of the amount of appreciation attained? In other words, can it be that fully one-half of these university students had never really arrived at the stage of genuine literary appreciation? One can only speculate as to the percentage of students who were reading books possessing real literary merit, but practical observation makes it seem likely that this percentage was considerably smaller than the percentage of students who reported the reading of books. What, then, of our teaching of literary appreciation in the junior and senior high schools? Again and again in past years it has been said that the reading of the pupils in English classes is formal and that the content of the books used to teach appreciation is so exclusively drawn from the literary classics that it fails to appeal to pupils. Long ago Judd pointed to the fact that this is one of the unsolved problems in the teaching of literary appreciation.

> Requiring the student to digest a story in small fragments and to answer the most minute questions with regard to each fragment is to cultivate a habit of mind with regard to books which is utterly disastrous for later life. The student gets an impression that a story of this sort is a Herculean intellectual problem. He will never be stimulated to take up a book of this sort in leisure hours in his later life if he is impressed with the immensity of the undertaking.[1]

The results of this study suggest that possibly a certain percentage of the English teachers may still be employing the method of teaching English that is here criticized. There is the further possibility that even the reforms which have been introduced are only half understood by many teachers, with the result that even today the teaching of English in the schools is by no means as effective as it must be made if it is to meet the modern demand of training for leisure hours.

In a recent editorial Buckingham asserts that the greatest waste in education lies primarily not in the cost of instruction nor in the relation of cost to achievement but in what takes place after the pupil has finished his course of study, that is, in the failure of the graduate to keep up his acquaintance with English literature, economics, philosophy, science, etc.

[1] Charles Hubbard Judd, *Psychology of High-School Subjects*, p. 170. Boston: Ginn & Co., 1915.

Ask a Senior in college something about chemistry. Unless he has been specializing in chemistry, he will content himself with telling you that he "had" chemistry in his freshman year. Give a person in his thirties or forties a passage in German or Latin to read. Ten chances to one he can make nothing of it. He may tell you that he "took" Latin in high school or that he "studied" German in college; but, so far as any immediate performance is concerned, he is helpless. Ask an acquaintance about Chaucer, Shakespeare, Milton, or Wordsworth. He may tell you that he "majored" in English; yet ten to one he will make a sorry showing. The idea seems to be that if one has but studied a subject, one may rest content for the rest of one's life. As James Harvey Robinson has pointed out, these things which were "had" or "taken" in school days are all safely put away in the past tense, as one might put away a Paisley shawl in a cedar chest or a rope of pearls in a safety-deposit vault. The expectation seems to be that the competence one once had will be imperishable or at least that, having once attained it, one has secured all the advantage it has to offer.[1]

The findings here presented seem to bear out Buckingham's statement that a very large percentage of high-school graduates are content merely to have "had" courses in English. If hardly as many as one-half of these "selected" high-school graduates had a sufficiently favorable attitude toward books to read *any kind of a book* when the teacher's constraining influence was removed and if scarcely more than 50 per cent of these same university students read short stories when they were not required to do so, what must be the facts regarding those who do not continue their studies beyond the point of graduation from high school?

The reader may discover for himself the meaning and the implications of the foregoing data. The reader may judge for himself how large a percentage of the voluntary readers of books devoted themselves to books that possess real literary merit. The reader may also form his own estimate of the percentages that were reading books printed in a foreign language. Evidence assembled by the Advisory Committee of the American Classical League with respect to ability to read new Latin after the study of the language in school or college has ceased is of interest in this connection. So unsuccessfully has this objective been met that, on the basis of its findings, the Advisory Committee was moved to make the following recommendation to the American Classical League. "In view of the evidence

[1] "The Greatest Waste in Education," *Journal of Educational Research*, XII (November, 1925), 312.

given above, we believe that this objective [ability to read new Latin after the study of the language in school or college has ceased] is not valid for most pupils in the secondary course, and it is therefore omitted from the list of ultimate objectives recommended."[1]

Latin students are found to be unable to read new Latin; reading ability is therefore dropped as an objective in the teaching of Latin. It must be obvious that the mere ability to read is not enough. There must also be present a *willingness* to read, a deep-seated desire to read. Fifty per cent of the students included in this study had not gained a genuine taste for the long, coherent perusal of a full volume as a leisure-hour employment. If the reading of books for pleasure during leisure hours is an objective in the teaching of English, it seems perfectly clear that in the case of these particular students it was being only half met. Is such reading one of the objectives in the teaching of English? If so, just how adequately is it being met elsewhere than in Kansas?

[1] *The Classical Investigation Conducted by the Advisory Committee of the American Classical League*, Part One, p. 40. Princeton, New Jersey: Princeton University Press, 1924.

A STATISTICAL COMPARISON OF THE STUDENT-HOUR COSTS OF INSTRUCTION IN TWENTY-TWO CHICAGO HIGH SCHOOLS. I

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The problem.—The study here reported had two major purposes: (1) to determine the student-hour instructional costs in twenty-two Chicago high schools for the first semester of the school years 1914–15 and 1922–23, with the particular aim of comparing the results obtained; (2) to determine and evaluate the principal factors effecting differences in student-hour costs for each of the two semesters and the major causes of the changes in cost occurring within the period.

The purpose of comparing the costs made it necessary to limit the study to the twenty-two high schools which were in operation in the school year 1914–15. The Hibbard and the Lindblom high schools, with 1922–23 enrolments of 2,404 and 3,286, respectively, were omitted because they were established after 1914. The enrolments of the twenty-two schools in 1914–15 totaled 29,699 and ranged from 498 to 2,300. In 1922–23 the total enrolment had increased to 54,191 pupils, and the range was from 660 to 4,179.

The sources of the data and their collection.—The calculation of student-hour instructional costs obviously requires two types of basic data—data relating to the distribution of the individual teacher's time with reference to subject and pupils and data relating to the compensation the teacher receives for her teaching services. Data of the first type were taken from the teachers' daily program cards and data of the second type from the official pay-rolls, both records being available in the central administrative offices.

The personal method of collecting the basic data was followed throughout. The writer studied the programs of the more than four thousand teachers employed in the twenty-two schools at the two dates, took the salary figures directly from the official records, made

the salary distributions required, and did all the work where interpretation was involved.

The statistical procedure.—The term "student-hour instructional cost" as here used refers to the cost of teaching one pupil for one clock-hour. With reference to a particular class group, this cost may be determined by the application of the following formula:

$$\frac{\dfrac{\text{Recitation periods per week devoted to subject}}{\text{Assigned periods per week in teacher's program}} \times \text{Semester salary of teacher}}{\text{Average size of class group} \times \text{Clock-hours covered by class-group meetings}} = \text{Student-hour cost of class group in cents}$$

The statistical treatment involved three main steps: (1) the computation of the student-hour costs by school and by subject for both semesters under consideration, (2) the analysis of the foregoing formula to show the weight of the component factors as the determinants of student-hour instructional costs, and (3) the interpretation of the cost variations and changes exhibited by schools and subjects in terms of the principal cost determinants.

THE STUDENT-HOUR COSTS WITH PARTICULAR REFERENCE TO A COMPARISON OF ABSOLUTE FIGURES

One of the major purposes of the investigation, as stated in the first paragraph, was *to determine the student-hour instructional costs in twenty-two Chicago high schools for the first semester of the school years 1914–15 and 1922–23, with the particular aim of comparing the results obtained.* When this statement of purpose was made, the writer anticipated the following comparative relations in particular: (1) the determination of the relative standings of the twenty-two schools with reference to the absolute student-hour costs for each of the years under consideration, (2) the determination of the relative standings of the various subjects and departments with reference to the absolute student-hour costs for each of the years under consideration, (3) a comparison of the costs in 1914–15 with those in 1922–23 with reference to schools and subjects. Figures 1 and 2 present graphically the three comparisons and make it possible to limit this section of the article to a brief statement of the outstanding facts portrayed.

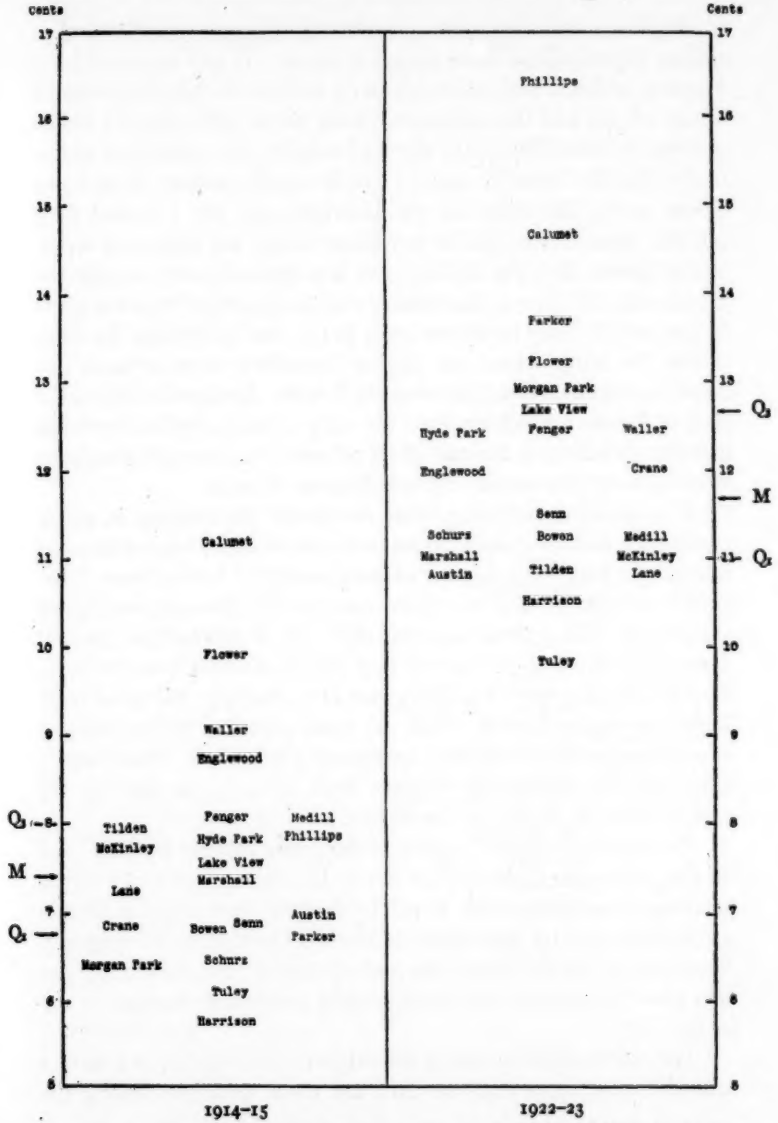

FIG. 1.—The student-hour costs of twenty-two schools for the first semester of the school years 1914–15 and 1922–23.

Figures 1 and 2 impress one with the extreme variations that similar investigations have always revealed.[1] It will be noted from Figure 1, which is designed particularly to show the relative positions of the schools and the variations among them with reference to the absolute student-hour costs when all subjects are considered collectively, that the range in 1914–15 was, in round numbers, from six to eleven cents, the costs for the Harrison and the Calumet high schools, respectively. Stated in relative terms, the difference represented means that the highest cost was approximately double the lowest cost. In 1922–23 the schools exhibited a range from ten cents in the case of Tuley to sixteen cents in the case of Phillips. In other words, the latter school was paying two-thirds more to teach one pupil for one clock-hour than was the former. An examination of the part of Figure 1 which presents the 1914–15 costs shows somewhat extreme variations in the case of six schools. In 1922–23 four schools were considerably outside the middle zone of cases.

The absolute differences that determine the ranking in many cases, even including the extreme costs, are so slight when expressed in cents that they may appear as mere statistical fluctuations. That such is not the case and that there was considerable variation among the schools with reference to the unit cost of instruction are evidenced by the per pupil costs as they may be derived from the basic data by dividing the total salary cost of a school by the enrolment. These per capita figures, which are more practical for purposes of comparison in this connection, are reported in Table I. The absolute costs and the percentage changes from 1914–15 to 1922–23 are ranked from the lowest to the highest.

The figures in Table I represent the *actual semester teaching costs* on the per capita basis and are not to be confused with per capita costs as currently reported. It will be observed that the table reveals a variability greater than that exhibited by the student-hour figures. Expressed in relative terms, the highest cost in 1914–15 was 246 per cent above the lowest; the corresponding percentage dropped to 197 in 1922–23.

The cost variations among the subjects as presented in Figure 2 are, of course, more extreme than are those exhibited among the

[1] J. F. Bobbitt, "High School Costs," *School Review*, XXIII (October, 1915), 503–34.

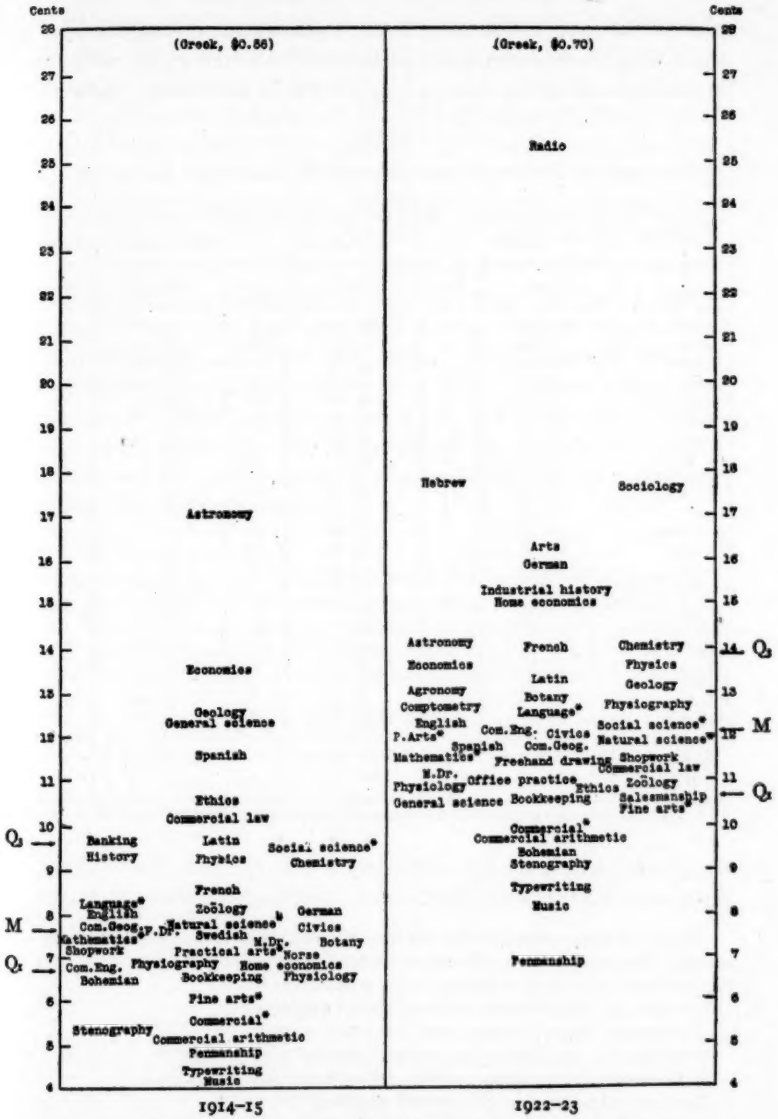

FIG. 2.—The student-hour costs of the various subjects for the first semester of the school years 1914–15 and 1922–23. An asterisk indicates a subject group.

schools.[1] In 1914–15 the range in the student-hour costs per subject was from 4.02 cents for music to 56.0 cents for Greek or, ignoring the latter subject as an extreme, to 16.987 cents for astronomy. Between

TABLE I

PER CAPITA INSTRUCTION COSTS FOR THE FIRST SEMESTER OF 1914–15 AND 1922–23

SCHOOL	1914–15		1922–23		PERCENTAGE OF INCREASE	
	Cost	Rank	Cost	Rank	Per Cent	Rank
Austin	$23.84	7	$42.01	11	76.22	14
Bowen	25.04	9	45.89	19	83.27	16
Calumet	37.63	22	31.64	4	−15.92	1
Crane	36.71	21	45.79	17	24.73	4
Englewood	29.28	15	45.60	16	55.74	11
Fenger	25.54	11	29.58	2	15.82	3
Flower	29.62	16	41.39	9	39.74	9
Harrison	10.88	1	35.37	5	225.09	22
Hyde Park	27.23	13	45.44	15	66.87	13
Lake View	25.06	10	45.98	20	83.48	17
Lane	24.91	8	45.22	14	81.53	15
McKinley	30.55	18	41.54	10	35.97	8
Marshall	27.03	12	30.80	3	13.95	2
Medill	30.66	19	41.29	8	34.67	7
Morgan Park	12.65	2	16.86	1	33.28	6
Parker	21.43	6	50.07	22	133.64	21
Phillips	30.48	17	47.17	21	54.76	10
Schurz	19.55	3	42.20	13	115.86	20
Senn	20.54	5	42.17	12	105.31	19
Tilden	31.34	20	39.76	7	26.87	5
Tuley	19.77	4	36.59	6	85.08	18
Waller	27.67	14	45.87	18	65.78	12
Range	$10.88–$37.63	.....	$16.86–$50.07	.....	−15.92–225.09	.....
Average	$25.79	.....	$40.37	.....	56.53*	.....

* This is the percentage of increase in the average cost, not the average of the percentages of increase.

these costs, which are approximately 4 and 17 cents, respectively, there was a fairly normal distribution. Omitting the Greek at 70.371

[1] The following outline indicates the basis of classification in the case of the "arts" courses. The classification is arbitrary and subject to certain inaccuracies arising from the indefinite terminology appearing on the program cards.

1. Practical arts (subject groups with vocational emphasis)
   a) Shopwork (forge, plumbing, auto mechanics, etc.)
   b) Mechanical drawing (drawing related to foregoing shop subjects)
   c) Home economics (cooking, sewing, millinery, costume design, etc.)
2. Fine arts (subject groups with cultural emphasis)
   a) Music (voice, history of music, orchestra, etc.)

cents, we note in the case of 1922–23 another normal distribution of the student-hour costs, ranging from 6.939 cents for penmanship to 25.334 cents for radio instruction.

A comparison that suggests itself in a survey of the absolute costs relates to the rankings of the various schools for the two years under consideration. Stated more specifically, the question is: Did the schools tend to maintain their relative positions with reference to the student-hour costs over the eight-year period covered by the study? An examination of the figures when ranked from the lowest to the highest yields a negative answer to the question. With the exception of Harrison, Tuley, Flower, Calumet, and Fenger, schools in extreme positions, and Hyde Park in the middle zone with the same ranking both years, the schools show shifts in position from three places in the case of Bowen and Senn to fifteen in the case of Morgan Park and Parker. The lack of agreement between the standings of the schools for the two years is evidenced further by a low rank-difference correlation of .37.

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b) Freehand drawing

c) Arts (Weaving, pottery, basketry, jewelry, etc. are illustrative of subjects assigned to this group. In several cases the program card merely carried the term "arts," making it impossible to determine the particular subject referred to. In 1914–15 music and freehand drawing constituted the "fine-arts" department. The subjects designated as "arts" in 1922–23 represent curricular expansion.)

[*To be concluded*]

DIAGNOSING CASES OF FAILURE IN ALGEBRA

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Recently the writer was called upon to teach a class in algebra made up of pupils from different schools who had failed to receive passing marks in that subject during the previous year. The class was to be conducted for demonstration purposes for the benefit of a group of teachers who were studying the problem of the teaching of mathematics. It was necessary to do something out of the ordinary in the way of procedure in order to arouse the interest of both the pupils who were taking the work and the teachers who were observing.

Since the pupils had presumably secured some information about algebra in their earlier contact with the subject, it was thought best to try to discover what they knew. None of the pupils were known to the instructor, and none of them came from the school with which he was associated. It was therefore important to obtain as much objective evidence as possible of the cause of failure on the part of each pupil. Obviously, the first thing that a teacher would think of would be to give a test. Equally obvious is the fact that no ordinary test, such as the type usually used for final examinations, would furnish the information desired about the pupils.

The first task was to construct a test or a series of tests for the purpose of determining the causes of failure. The range of material covered in first-year algebra is so great that an adequate test of the entire field could not be given in a single class period; hence it was necessary to divide the work into several units.

It is the object of this article to describe the testing of a part of one unit and the information obtained from it. The part of the test chosen as the basis of this discussion deals with problems usually referred to as time-rate-and-distance problems and is as follows:

1. If you travel at the rate of twenty miles an hour for five hours, how far will you go?

2. The relationship used here is expressed by the algebraic symbols, $D=RT$

(distance equals rate times the time). Write the symbols to show that rate of travel may be found by dividing the distance traveled by the amount of time taken.

3. Show how you would express algebraically the statement that the time taken is determined by the distance traveled and the rate of travel.

4. A certain train goes at the rate of 15 miles an hour. Express the rate of a second train which goes x miles faster.

5. Do the same for a train that goes y miles slower.

6. Show how long it would take the first train to go 60 miles.

7. Show how long it would take the second train to go 60 miles.

8. Show how long it would take the third train to go 60 miles.

9. Which of these trains requires the least amount of time?

10. Which of them requires the next least amount of time?

11. If the difference in the time taken by the fastest train and the next train is 1 hour, how could we show this fact algebraically?

12. The rate of an express train is three times that of a slow train. It can go 180 miles in 8 hours less time than the slow train takes. Find the rate of each train.

13. The rate of a passenger train exceeds twice the rate of a freight train by 5 miles per hour. It can go 350 miles while the freight train goes 150 miles. Find the rate of each train.

An examination of the test will disclose the principles of its construction. First of all, we wished to know whether the pupils were able to comprehend the relationships involved in this type of problem. This was tested by Problem 1. Since the usual procedure in the case of this type of problem is to develop a formula and then solve problems by means of it, we tested the pupils' ability to express a relationship in a formula when specific directions were given and when the relationship was indicated, but only indirectly. Problems 2 and 3 cover these two points, respectively. The next ability to be tested was the ability to express larger or smaller quantities as derived from a constant quantity (Problems 4 and 5). The formula was then applied to two types of conditions; that is, (1) find time when distance and rate are known as absolute values and (2) find time when distance is known but when rate is expressed as a binomial (Problems 6, 7, and 8). Since complete solution is impossible in Problems 7 and 8, we tested an understanding of their value by asking the pupils to evaluate the indicated results as to the amount of time each represented. Such an ability was thought to be necessary before the pupils could be reasonably expected to form equa-

tions intelligently. Problems 9 and 10 call for such an evaluation. Next the evaluated terms were to be placed in a relationship series which would indicate their comparative size, that is, in an equation. Finally, two problems calling for the use of the whole complex of conditions were given.

The same general procedure was followed for each of the units tested. We tried to "introduce but one difficulty at a time" and to pass from the simple to the complex through rather definite degrees of increasing complexity and difficulty.

TABLE I

NUMBER OF INCORRECT RESPONSES*

Pupil	Problem													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
M						×	×	×			×	o	o	6
E		×	×				o	o	×	×	o	×	o	9
A			×		×	×	×	×	o	o	o	×	×	10
D		×						o	×	o	o	×	×	7
C		o	o			×	×	×	×	o	o	×	×	10
P											×	o	o	3
H														o
L				×			o				o	o	o	5
Total	o	3	3	1	1	3	5	5	4	4	7	7	7	50

* × indicates incorrect response; o indicates that the pupil left no record of his attempt to solve the problem. Percentage of error for the class is 48.

How adequately the test functioned may be determined by a study of Table I, which shows the type and arrangement of the incorrect responses. This table indicates that no pupil failed to comprehend the relationship called for in Problem 1. Three pupils had difficulty with Problem 2 and three with Problem 3. In each of these cases the mistake made by one of the pupils was due not to misinterpretation or to incorrect expression of the facts called for in the example but to an improper use of the radical sign. This mistake was characteristic of two or three other pupils, as was discovered later. No difficulty with Problem 4 was disclosed, but one pupil indicated a lack of distinction between the binominal $15+x$ and the monomial $15x$. Problem 5 brought out an anticipated type of error when the response $y-15$ was made to the stimulus y miles less than 15 miles.

Problems 6, 7, and 8 revealed two pupils who failed to sense correctly the relationship involved and multiplied when division was called for. Furthermore, Pupil A showed an incorrect arithmetic bond, and Pupil C showed a typical algebraic error in multiplying a binomial by a monomial and securing a monomial as a result. Pupil M showed a lack of understanding of the radical sign. In the evaluation exercises the mistake which we expected to find was made by two pupils; they seemed to think that the slower the rate, the less time would be required to travel a given distance. Where the equation called for a relationship between the time taken by two trains, two pupils expressed a relationship between the rates. This mistake, however, might have been caused by the sequence of the problems.

In the solution of the verbal problems, three pupils indicated that they were able to discover the relationship between the various answers, but they did a variety of things with their discoveries. For instance, Pupil D solved Problems 3, 6, and 7 correctly when each of them called for a relationship of distance to rate in order to indicate the time factor. In the solution of Problems 12 and 13, she inverted the relationship and, of course, failed. Only one pupil made no errors on the test.

The results apparently leave little doubt that there was ample reason for the failure of most of the pupils in their courses in algebra, at least so far as their knowledge of this unit of the work is indicative of their knowledge of the entire course. Pupil H is an obvious exception to the general run of the group. He proved to be a very good student and easily disposed of whatever difficulties he may have had which had justified his failing. He was unanimously selected by the observers for promotion at the end of the brief instruction period.

An outstanding difficulty in diagnosing the work of these pupils was their tendency to omit any and all problems which they thought they could not solve. Obviously, it is impossible to determine the cause of an error until the error has been made. If this refusal to try a problem is the product of the school work of these pupils, it represents a serious state of affairs.

On the basis of the empirical data derived from the application of the test, we concluded that our attempt at diagnosis had been only partly successful. The results indicated that our type of diag-

nostic instrument was sound. The test itself could be improved by a more careful analysis of the difficulties that children meet in the various units of algebra and by a more careful statement of the problems so that confusion due to an implied relationship between consecutive problems could not be the cause of incorrect responses.

The data clearly indicate the futility of attempting mass instruction in a class of this type. Many pupils may have difficulty with the same problem, but the evidence seems to indicate that we will err if we think that all experience the same difficulty. Especially will this be true in the case of a group of pupils who have taken a subject and have failed to pass it.

We convinced ourselves that diagnosis of failure is possible and in many instances easily obtainable. Every teacher should be working on the problem so that we may develop a technique for diagnosis that is better than the type used in the past.

METHODS OF DISCOVERING AND REMOVING SPECIFIC CAUSES OF FAILURE IN NINTH-GRADE SCIENCE

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During the first two weeks of the school year 1924–25 it was apparent that several of the pupils studying physiography in the Community High School, Geneva, Illinois, were unable to make satisfactory progress in the subject. Furthermore, they were not very much interested in the work. The pupils did not seem to know how to go about mastering the material, and it was the opinion of the writer that the most probable reason for their difficulty was that they had faulty habits of study.

This article presents the methods used to discover and to remove the causes of the poor work of these pupils. The plan of instruction differs from that ordinarily used in high school. The work of the semester is divided into a definite number of units or blocks. The length of a unit varies according to its difficulty and its value in the course. A short unit requires seven or eight days; a longer unit may require twenty days.

The unit can be conveniently divided into five phases: discovery, presentation of the new work, organization of the work, test, and recitation. (1) In the first phase, *discovery*, an attempt is made to find out how much information the pupils already have about the new work and to determine the items in which they are most interested. (2) On the following day a fifteen- or twenty-minute *presentation talk*, covering the fundamentals of the new work, is given by the instructor. The pupils take such notes as will be helpful in outlining the talk. After reviewing their notes for two or three minutes, the pupils prepare outlines. (3) Then begins the long period of *organization and assimilation*. The pupils are asked to read the entire unit rapidly and then to organize it so that they can discuss all or any part of it. Use is made of reference books in the classroom and in the school and city libraries. Sometimes the references are

listed; at other times the pupils are required to find them independently. Short tests are frequently given during this period to determine the rate and the quality of the work. (4) The *examination* may be any one of the following types: true-false test, in which the pupils are given fifty or more statements, each of which they must designate as being true or false; open-book test, in which twenty or more questions are to be answered in writing; the conventional test, in which the pupils write the answers to five or six questions placed on the board. (5) On the day following the examination a *recitation* on the entire unit is held. The recitation may take a variety of forms; most frequently talks covering the entire unit or certain parts of it are called for by the teacher or by the pupils. At this time further problems are mentioned for voluntary reading.

GROUP DIAGNOSIS

In order to determine the causes of the poor work and of the lack of interest on the part of the pupils, it was necessary to discover the specific contributing factors. Accordingly, tests prepared by the instructor were given to obtain a comparative rating of each pupil in the class on the types of thinking necessary to master physiography. The first test consisted of a reading exercise, designed to measure rate of reading and comprehension in the case of textual material. The instructions to the pupil follow:

> Read the following exercise at your usual rate of study. At the end of one minute I will call *time*. Draw a line under the word you are then reading. Continue to the end at your usual rate. Then begin immediately on the examination on the next page. Follow closely the directions there given.

On the next page were the following directions:

> Some of the following statements are true; some are partly or entirely false. Opposite each statement which you think is true, draw a line under the word "True." If the statement is not *entirely* true, draw a line under "False." You may refer to the reading material as often as you like for your answers.
>
> Here is a sample: There are more than 10,000 stars in the heavens. True False

On the following day an exercise was given to test the ability of the pupils to outline text material. They were instructed to read rapidly through seven pages and to make an outline of the main and

minor points. During this period the pupils unknowingly revealed their attitudes toward the work.

The next day was given to finding topic and summary sentences and to noting the relation of paragraphs and topics to one another and to the title of the chapter.

On another day an exercise was given to test the pupils' ability to use an index. The directions follow:

> This exercise is given to see how well you can use an index. The sentences or phrases given below have been taken from your textbook. Read each sentence carefully; then pick out a *key word* for which you will look in the index. Turn to the page there indicated and see if you can find a sentence exactly like the one on this paper. Sometimes reference will be made to more than one page; so you may have to try several different ones before finding the right one. If one key word will not do, try another. Here is a sample:
>
> The moon is the satellite of the earth. Look in the index for either "moon" or "earth," and see on what page you find the exact statement given above. Do that now. Then begin on the exercise. Write the number of the page in the space provided before each statement on the exercise sheet.

Thus an attempt was made early in the term to discover the specific abilities of each pupil in order that he might be enabled to do the best work of which he was capable. The data obtained by means of the foregoing tests, combined with the results of the Otis Self-Administering Test of Mental Ability, Higher Examination, gave sufficient information on which to base a procedure designed to produce correct study habits.

Attention now shifted to individual considerations, for not all cases could be given similar treatment.

INDIVIDUAL DIAGNOSIS AND TREATMENT

The pupils who did not profit from the group treatment are here referred to as *problem cases*. I asked each problem case to come to my room when I had a free period in order that we might attempt to locate the cause of his difficulty and remove it so that he could do the best work of which he was capable. Each pupil was eager to locate his trouble.

When the pupil entered the room, I pretended to be busy at my desk. I asked him to be seated, directing him to a desk where a book pertaining to the course had been placed. For two or three minutes

I continued to be "busy," but, in reality, I was watching the pupil to see what he would do with the book. Later, I asked him to read a paragraph silently and to tell its contents. After he had told what he could, he was given questions on the material. He was directed to read a second paragraph rapidly and then to re-read it for the thought. He was tested on this paragraph in the same manner as on the first one. He was then shown questions which would be asked on the content of a third paragraph. He was permitted to study this paragraph in any manner he chose until he felt that he had mastered it. In the case of each of the three paragraphs, note was made whether the pupil's response was poor, medium, or good. Note was also made of his eye-movements to see whether he read rapidly across the page, repeated parts of the lines, glanced at material previously read, or was distracted by the making of notes.

The pupil readily gave other information, such as the conditions for home study, his parents' interest in education, the amount and kind of outside work, and what he expected to do after finishing high school. He listed all the subjects which had been easy for him in the elementary school, giving the reasons why he thought them easy, and also those which he had not liked, giving the reasons for not liking them. This information was of great value because it enabled us to become better acquainted. We talked of something in which he was interested and which he enjoyed talking about. He then listed his study habits which he thought were good and those which he considered bad. These lists frequently contained the following items: necessary working equipment at hand, proper posture, making of notes during study, outlining, summarizing, and reviewing.

On the basis of these lists and the results of both the individual reading tests and the group tests, we attempted a business-like analysis of what we thought were the specific difficulties. Wherever possible, I waited for the pupil to make suggestions, which I either criticized or adopted. Thus, he gained the impression that he was diagnosing his own difficulties; he was therefore very much interested.

When we had finally agreed upon a study program which he thought he could follow, two copies of it were made, one to be kept

by the pupil and the other by the instructor. At the end of a week, the pupil reported in order that we might note the progress which he had made and decide whether his study program should be altered in any way. Almost without exception, the pupil left this conference with a smile, indicating that he believed that he could succeed.

Some cases histories are given to show the specific results of this treatment.

Case history of Pupil B.—The records in the office showed that Pupil B was of average ability when he was in the eighth grade. The Otis test revealed an I.Q. of 101. The group reading test indicated that his rate of study was equal to that of the average of the class but that his comprehension was the lowest in the class. He considered physiography his hardest subject and the one in which he was the least interested.

During both directed study and recitation, he was almost constantly playing with his clothes or with his pencil, which he frequently dropped. Often he placed his fingers or thumb in his mouth. He kept his attention on the book only a few minutes at a time and then stared about the room or talked to his neighbor. When called on during the recitation, he never knew what the question was or what the previous discussion had been about. His study profile[1] showed that he wasted his time in the study hall even more than he did in the classroom. He readily consented to a conference in order that we might find out what was hindering him in science.

He was asked to read the first paragraph once and to tell its contents. The movements of his eyes indicated that he read very slowly, repeating words and phrases. He could recall nothing of the reading; nor could he answer any questions based on it. He was asked to read the second paragraph very rapidly and then to re-read for the main points. He did not read rapidly, as requested. He could recall a part of the reading but could not answer any of the questions based on the paragraph. He read the third paragraph after seeing the questions that were to be asked. This time he did a little better than in the previous attempts.

[1] A study profile is a graphic representation of the way a pupil uses his time during a given period. By the use of graph paper (each square representing one minute), intervals of attention and distraction can be noted.

It was brought out that he had been trying to get his lessons at one reading, that he had not attempted to find any relation between the various topics, and that he had not tried to pick out the major topics around which to group the minor topics. The group tests showed that he did not know how to outline or how to use an index efficiently. It was suggested that he report to me a half-hour before school every morning for three weeks. He readily consented to do this.

During these half-hour periods we worked on his specific difficulties: rapid reading, the finding of topic sentences, the distinguishing of main points from minor points, and outline-making. After the first week, he was given a definite amount of work to do at each morning period. He was told how long it would take a pupil of average ability to do it, and he was urged to do it in less time. The third week he worked without any assistance, eager to keep ahead of the class. Thus he raised his mark from failure the first month to B the second month. His semester average was C.

At the end of the second month a letter was sent to his father, reporting the rapid improvement and expressing the hope that it would be permanent. Shortly afterward, the father stopped me on the street to express his appreciation for the fine thing I had done for his boy.

Case history of Pupil N.—Another interesting case was that of Pupil N. During the period intended for study in the classroom, he did not begin work until I asked what he was doing; then he stopped working as soon as he thought that he was not being watched. During the recitation he never knew what had been the topic under discussion. He never contributed anything nor asked questions of any kind.

The group tests and the individual reading tests yielded results approximately the same as those for Pupil B. Pupil N's I.Q. was 98. The records showed that he was near the bottom of his class when he was in the eighth grade. Much the same program was worked out as in the case of Pupil B, but on the following morning he did not come at the specified time. When questioned, he said that he would do better the next morning, but again he did not appear. When asked to remain for a short time after school, he re-

plied that he had chores to do. At the suggestion that his older brother might be interested in helping him, he rebelled, saying that he could not learn anything from his brother.

That evening a note was sent to Pupil N's parents, telling of my findings. It was suggested that if the boy could report a half-hour before the beginning of school each morning for two weeks, he would probably be able to do good work. His parents were asked to contribute any suggestions that they could offer. The next day his mother telephoned to thank me for my interest in the boy. She said that when they had tried to help him, he had told them that home study confused him because my method of teaching was different from theirs. They had been satisfied with that explanation. I told her of some specific things which they could do very effectively. She said that the instructions would be carried out and that the boy could work with me before or after school for as long a time as I wanted him.

The quality of his work began to improve immediately. By the end of the first week he had raised his mark from constant failure to the average of the class and had done some outside reading in addition to the regular class work. A note was sent to his mother telling of his rapid progress. The next morning he came earlier than usual with the comment, "You should have seen how pleased my mother was to receive your letter." I replied that if he continued at that rate until the end of the month, he would have the pleasure of taking home a passing mark on his report card. He said that he would try. It was a genuine pleasure to give him the well-earned B and to write to his mother about his interest.

Case history of Pupil X.—Unfortunately, not every case turns out so satisfactorily as that of Pupil N. From the very beginning Pupil X did not show any interest in his work. He had repeated the fifth and the seventh grades and had barely passed the eighth grade. His mother had died two years before. He was required to do the greater part of the housework for his father and two older brothers, all of whom were carpenters.

When he came for a conference, he defended his attitude by saying that he did not want to go to school and that he contemplated leaving in a few days. He did not like to read books of any kind. He

did not like to associate with the boys in his class at school; he preferred to spend his leisure time at a garage with boys of his own age (seventeen) who were not in school. He mentioned the fact that he had not felt well for more than three years because of appendicitis and the fact that he had always had weak eyes.

An attempt was made to show him that continuance in school would reward him by resulting in ability to earn higher wages in any line of work. It was pointed out that he would be better fitted for a greater variety of jobs should his health require that he change from one to another. It was suggested that his eye trouble was responsible for his lack of interest in reading. Finally, attention was called to the fact that he would not be able to do much manual work of any kind until his health improved. He said that he would think the matter over.

Two weeks later Pupil X was called in for another conference, which was similar to those held with Pupils B and N. He said that he would try for one week and that if he could do the work satisfactorily, he would keep it up to that standard; he also said that if he could not do it for that week, he would not try again.

His work for the week was slightly above the average of the class. His father was informed of the notable improvement and told of the chance the boy would have to complete the course with credit if he continued to do good work. The boy missed two days of school the following week on account of ill health. From that time until the end of the semester he attended school 70 per cent of the time. Some weeks his work was barely passing; some weeks it was failing. Early in December he asked what would be his status for the semester. He was informed that he would probably fail unless he attended school more regularly, gave good attention in the classroom, and used his time in the study hall to better advantage. His work improved very little over that of the preceding weeks. It seemed that he would not be able to pass the course, but his final examination mark of C+ gave a semester mark of D−, the lowest passing mark. He passed only one other course, manual training, in which he made a mark of A.

Case history of Pupil W.—The case of Pupil W, although not so extreme as the cases previously mentioned, was no less deserving

of consideration. Her marks in all courses were between C and D. One day she voluntarily came to my room to ask how she could get better marks. It soon developed that to give sustained attention was her hardest problem, both in study hall and in class. She said that, while the recitation was in progress (this applied to all classes), she would wonder how people could talk, how the teacher could know so many things, how the teacher could recall just the right thing at the right time, etc. The trend of thought was guided by the particular class she was attending. On that very day, when the class was studying mountain formation, she took an imaginary trip by motor on a mountain trail. When called on for recitation, she had not the faintest notion of what the previous discussion had been about. She could tell scarcely anything of what had happened in any class that day.

The suggestion was made that she report each afternoon for a week and tell all that she could of the discussions which had taken place in her various classes that day. It was suggested that she volunteer frequently in those classes where such practice was in use; when volunteering was not permitted, she was to formulate an answer to each question and compare it with the one given by the pupil who was called upon. By the end of the week she could give a good report of what had happened in each class. She soon began to make rapid progress, which she maintained throughout the remainder of the year.

RESULTS OF GROUP AND INDIVIDUAL DIAGNOSIS

Attention has been called to the fact that the class as a whole was not greatly interested in the course. Shortly after the completion of the group testing, when the pupils had been shown how to overcome their ineffective study habits, some of the most capable pupils extended their interest beyond the required amount of work. They were able to keep up with their class work and to find time for additional reading.

When the practice of enriching the course by outside reading was first adopted, it was thought that only three or four of the brightest pupils would be interested in it. During each succeeding month, however, an increasing number of the pupils found time for this

reading. In September seven pupils read an average of ninety-five pages, on which they passed satisfactory oral examinations. In October eight pupils read an average of 350 pages. By December all the pupils in the class except two were doing outside reading. The average for those participating in December was 240 pages. Thus, during the month of December the pupils did excellent class work, and, in addition, each pupil read 240 pages of scientific material outside of class.

This is a very good record for science, but what defense is there for taking the pupils' time from other courses to do so much work in one subject? This would be a valid question if the pupils had been *required* to do even as much as one-half the amount of reading that was actually done. The fact that the pupils did so much outside reading voluntarily shows that a solution was found for one of the problems mentioned at the beginning of this article—that of creating an interest in physiography. The records in the office show that in the other three subjects taken by the pupils in this class there was no sacrifice in scholarship. In nine cases the averages for the other three subjects were the same in December as in September; in two cases the marks were higher in December than in September; and in seven cases they were slightly lower in December than in September.

SUMMARY

By means of the Otis test and exercises devised by the instructor to test pupils on the specific kinds of ability necessary for good work in science, the problem cases in a ninth-grade physiography class were discovered during the first three weeks of school.

By means of a schedule worked out by the pupils and the teacher, sometimes with the help of the parents, it was possible to reduce the number of problem cases from thirteen to two. One of the unsolved problem cases (I.Q., 84) left school in November, failing in all subjects. The other case was Pupil X, whose history has been reported.

The pupils' interest in science increased immediately when they were taught to use efficient methods of study.

The pupils did a high quality of class work, and, in addition, almost every member of the class *voluntarily* did a great amount of scientific reading without lowering his marks in other courses.

Educational Writings

REVIEWS AND BOOK NOTES

A general view of the junior high school.—Most of the books which deal with the subject of the junior high school fall into two groups: those descriptive in a general way of the organization, administration, and curriculum of the junior high school and those treating specifically some phase of the problem as determined by the author's experience, observation, and labor. A new book of the former type[1] affords a comprehensive view of what has been accomplished toward the solution of junior high school problems during the past fifteen years.

The desire of the author to omit nothing is suggested by the fact that the first hundred pages are devoted to the history of American and European secondary education. The essentials, in so far as they bear on the subject of the book, are faithfully set forth and well organized. A section describing the junior high school pupil and his needs presents the fact of individual differences among pupils from a number of points of view. No other book on the subject has so frankly included the question of physiological maturation and its significance in adolescent personality as co-ordinate in importance with mental development. The outstanding characteristics and needs of junior high school pupils are listed as follows: "Junior high school pupils are primarily children twelve to sixteen years of age" (p. 141). "Most children of junior high school age are physiologically either maturing or mature" (p. 142). "Children differ more widely among themselves during the junior high school age from the standpoint of interests, attitudes, and attainments than at any previous age-level" (p. 144). "Children of junior high school age have not yet fully completed the education that all need in common" (p. 146). "Children of junior high school age face the necessity of making important educational and occupational choices" (p. 146).

The purposes of the junior high school, as expressed by various thinkers on the subject, are carefully reviewed and summarized in ten statements. The relation of the program of studies and the extra-curriculum activities to these purposes is then discussed.

The last two hundred pages are devoted to a discussion of the organization and administration of the junior high school. Gradual and finally complete departmentalization, ability grouping, supervised study, and especially guidance are listed as highly essential. Needs and standards in buildings, teaching staff, and administrative officers are pointed out.

[1] William A. Smith, *The Junior High School.* New York: Macmillan Co., 1925. Pp. xiv+478.

The book is not to be considered an original contribution to thought on the subject; it is avowedly not so intended. It is the product of library research. The reader will occasionally regret that some of the literature from which descriptions of practice have been taken was written during the first year or two of the lives of the particular schools cited and during the early years of the junior high school movement. There is always danger of including practices discredited by subsequent experience or even practices actually organized on paper only. In matters of opinion the author certainly does not err in the direction of self-assertion, as evidenced by the following safe and sane paragraph.

> There is little agreement regarding the most suitable machinery for pupil participation in school government. Some contend that the machinery should be very simple. Others maintain that better results may be obtained through a fairly elaborate organization. In actual practice the machinery varies greatly in the case of both junior and senior high schools, ranging from the severely simple to the rather elaborate. On the whole, those schools which have gone farthest in giving pupils an opportunity to participate in the government of the school have also the most elaborate machinery. Such machinery is, however, rarely really complex from the standpoint of the citizens of the community, though it may at first sight impress the outsider as rather complicated [p. 284].

As stated in the Preface, the book represents a compilation of material which the author has used in university classes. As such, it is a tribute to the extent of his research and to his judgment in organization. It is in courses on the junior high school that the book will function best. It should also be helpful to intelligent parents who are puzzled by the new type of school for adolescents and desirous of being informed.

H. H. RYAN

BLEWETT JUNIOR HIGH SCHOOL
ST. LOUIS, MISSOURI

Short stories for high-school pupils.—Two new books of short stories for high-school use call attention rather sharply to the necessity of extensive reading on the part of young people with guidance toward standards of taste. Perhaps because of the profusion of short stories, we have not taken our responsibility as seriously in this field as in the fields of poetry, essay, and novel. We know that high-school pupils will read short stories without encouragement. We must realize, however, that not only in their youth will they turn to short-story magazines for their reading recreation but most of them will continue to do so for the rest of their lives. If we could direct this interest toward a goal of high literary standards and cultivate it so that it might become discriminating, we would do a great deal for our pupils.

When one first looks through such anthologies as that of Boas and Hahn[1] or,

[1] *Short Stories for Class Reading.* Edited by Ralph P. Boas and Barbara M. Hahn. New York: Henry Holt & Co., 1925. Pp. xxvi+366. $1.20.

more particularly, that of Royster,[1] one is tempted to condemn them wholesale. One wonders why one might not as well hand the pupils copies of the *American Magazine* or the *Ladies' Home Journal*, but, after more thought, one realizes that choice among modern short stories is not easy. A large majority of those that have enduring literary quality are stories of life-experience which could not be comprehended or appreciated by children fifteen or sixteen years of age. On the other hand, the stories of adventure and action are preponderantly cheap in literary art, while those of elemental human experience are too simple and often sentimentally didactic.

Boas and Hahn have succeeded in choosing stories which have real literary value and yet will appeal to pupils of high-school age. The Introduction is adequate but not tiresome, and the bibliography for supplementary reading is very good. Sixteen stories are included, all American except "Moti Guj—Mutineer." O. Henry, Booth Tarkington, Fannie Hurst, Katherine Mansfield, Dorothy Canfield, and other popular writers are represented by some of their best work. Royster has attempted to select the typical popular short story rather than to choose the best that could be found. One feels that other selections equally good might easily have been made at random from the better grade of popular magazines. Unfortunately, the worst story, a sentimental idealization of a successful man and his job, is placed first. It gives to an adult a little of the flavor of the old readers that began with a story called, "Try, Try Again," or "Two Strings to His Bow." The book has a good bibliography. W. D. Steele, Irvin S. Cobb, and Octavus Roy Cohen are among the authors represented.

It is interesting to note that, although the purposes of the two books are essentially the same and their sources are practically identical, only one story, "The Fat of the Land" by Anzia Yezierska, is used in both collections. Tarkington and Yezierska are the only authors to appear in both books.

GLADYS CAMPBELL

Guidance as it relates to the essential activities of life.—For about twenty years, the topic of guidance has occupied a prominent place in educational discussions and writings. The earlier treatments of the subject dealt very largely with vocational aspects, but more recently the educational phases have received the greater emphasis. The author of a recent book[2] attempts to cover the entire field of guidance in a volume of fifteen chapters.

The first five chapters give an overview of the guidance function of the school and treat the problems which have to be met by those who accept responsibility for giving counsel and guidance. The use of mental tests in discovering learning capacity and in revealing the possible school success of pupils is

[1] *American Short Stories.* Edited for school use by James F. Royster. Chicago: Scott, Foresman & Co., 1925. Pp. xxvi+342. $0.72.

[2] William Martin Proctor, *Educational and Vocational Guidance.* Boston: Houghton Mifflin Co., 1925. Pp. xvi+352. $2.00.

reviewed; personal factors other than intelligence which contribute to success both in school and in vocational life are presented; special interests and abilities and the means by which they may be discovered are described; and the organization of the school program with respect to guidance possibilities is discussed.

Chapters vi–xiv, inclusive, deal with the kinds of guidance which the school can and should provide. Ability grouping, individual instruction, and supervised study are discussed in chapter vi as means of providing for individual differences. The remaining chapters of the group deal with guidance in the choice of subjects, courses, and curricula; guidance in health and in physical exercise; guidance in the worthy use of leisure time; guidance in character-building activities; guidance in the making of vocational choices; guidance in the acquiring of vocational information; and guidance in the choice of vocational schools or in placement in industry. Each subject is treated with respect to pupils at the elementary-school, junior high school, and senior high school levels.

The last chapter deals with the organization of the school for guidance purposes. The working tools, such as tests, scales, methods of recording and filing case data, and the counselor's library, are described; questions pertaining to the qualifications and training of the counseling personnel are discussed; and the scope and the work of the guidance department of the school are outlined with illustrative examples.

The book will find use chiefly as a text in college and university courses dealing with the principles of educational and vocational guidance. It will also prove exceedingly helpful to principals and personnel officers who are faced with the problem of organizing counseling and guidance facilities for their schools.

W. C. REAVIS

The workingman's point of view.—With the increasing complexity of industry, the breach between employer and employee constantly becomes greater. The recent introduction of specialized personnel directors in many industries is an attempt to create better understanding and co-operation between the employer and his men. One of the first essentials in such a specialist in personnel service is a sympathetic understanding of the laborer's problems and point of view. To interpret the workingman's point of view is no simple task, but it has been effectively done by one who has identified himself with the laboring class. He has endeavored to present the workingman's point of view in a series of books, the most recent of which is *Mainsprings of Men*.[1]

The volume is not written in the conventional textbook style, most of it consisting of descriptive accounts, many in dialect, in which the author characterizes typical conditions and situations. Its intense realness and the aptly chosen incidents make it appeal to the reader. Included in each chapter are

[1] Whiting Williams, *Mainsprings of Men*. New York: Charles Scribner's Sons, 1925. Pp. vi+314.

certain social and economic principles which the reader cannot overlook because of the emphasis given them by concrete incidents.

The book is divided into three parts, each of which deals with a distinct phase of the labor problem. Part I is entitled, "What the Worker Wants"; Part II, "What All of Us Want"; Part III, "Finding What We Want in Our Work."

In Part I the author concludes that in the majority of cases the worker is quite as much interested in the social status which his job gives him as he is in the pay envelope which he receives. Further, he says that there is a caste system among laborers based on the status of their jobs which is as definite as the caste system in society at large based on property holdings. Frequently, employees are induced to organize in order to make themselves more secure in their jobs and to obtain more leisure time as well as to express an attitude of unfriendliness toward their employer.

In Part II the author emphasizes the significance of the feeling of worth and the desire for social approval as "mainsprings" of men. He says, "In none of us is the mainspring broken; only its control, its escapement is faulty" (p. 185). He further shows that intense emotional experiences, "crises," tend to unite the workers and that their leader is the man who is able to participate in these crises with them and bring them to a successful or satisfactory issue.

Part III is devoted to a more general presentation of the principles which underlie the effective administration of industry through sympathetic co-operation of employer and employee. New methods of administration and their results are discussed in some detail. The last chapters more nearly approach the usual abstract style of economic discussions than do the preceding ones.

The book should aid personnel directors in industry, employers, and leaders of labor groups in understanding their mutual problems more fully. It is of more than passing interest and value to the professional man, who needs a sympathetic insight into industrial problems.

A. J. BRUMBAUGH

A French exponent of common sense.—It is an interesting commentary on cultural education that the name of Voltaire should be universally known to the American student but that the man and his work should be generally unknown or, worse yet, misinterpreted.

As the "general purveyor of intellectual wares" to Europe for more than fifty years of the stormy period preceding the French Revolution; as an interpreter of English institutions and culture to his own country; as a forerunner of the modern school of historians represented by Gibbon and Robertson; as a staunch advocate of scientific research and an admirer of Locke and Newton; as a last exponent of epic poetry; as a philosopher, critic, and man of letters; and as one who corresponded with the intellectual élite of a continent, Voltaire dominated the century named after him as he now challenges the attention of modern students through his moderation, common sense, and impeccable diction.

The difficulty of becoming acquainted with Voltaire because of the complexity and immense amount of his writings (fifty-two volumes in the Moland edition) has been overcome for the French student by an exceedingly attractive and well-edited school edition,[1] unburdened with exercises or vocabulary, suited for reading in third-year or survey courses.

The appreciations of Voltaire by Pope, Goldsmith, Carlyle, and Taine prefacing the selections sharpen one's interest in the well-chosen items from his very human *Correspondance;* the *Lettres philosophiques;* his incisive *Histoire de Charles XII* and *Le Siècle de Louis XIV; Zadig; Candide,* with its famous last line, *"Mais il faut cultiver notre jardin"; Jeannot et Colin* (complete); and his dramatic and poetic work.

It is a well-rounded little collection, irreproachable in tenor, sufficiently annotated for its purpose, and altogether interesting, with full solace for the lover of French prose style.

O. F. Bond

The school library.—It is only within the last few years that any serious attention has been given to the public-school library. Changes in school organization, improved methods of school procedure, and a standardized curriculum have focused attention on this essential part of the school. At the present time it is recognized by students and teachers alike as indispensable in the efficient elementary or secondary school.

Gradually, standards for school libraries have been established and a definite, systematic library technique has been evolved. What this technique is and how the library may be so organized and operated as to serve best the needs of the school have been reported by leading librarians and educators at meetings of national and state associations of teachers and librarians and in numerous articles in educational periodicals. A very creditable selection and compilation of the most significant of these addresses and articles has been made.[2] From the manner in which the subject matter of the volume was secured, it is evident that the material involved is of a general nature rather than a specific or technical nature. Consequently, the trained librarian will be interested in the volume as a convenient reference book of materials which have been widely scattered. The beginner in library work, the student of library methods, and many teachers, principals, and superintendents interested in organizing the work of the library on a more serviceable basis can secure much of a very helpful nature from a careful reading of the book. In selecting the material, the compiler has tried to emphasize the general organization and management of the library and to focus attention on methods of conducting it so as to widen the scope of its use-

[1] *Voltaire Selections.* With an Introduction and Notes by Aurélien Digeon and Édouard Fannière. New York: Oxford University Press, American Branch, 1925. Pp. 164. $1.25.

[2] *Selected Articles on School Library Experience.* Compiled by Martha Wilson. New York: H. W. Wilson Co., 1925. Pp. x+352. $2.25.

fulness rather than to stress such technical phases of operative technique as listing books, outlining, indexing, judging and measuring the library, and recording and preserving essential statistical data.

The material included in the volume is organized under nine headings: "State Aid and Regulation," "The High School Library," "Special Features in High School Library Work," "Book Selection and Reading Guidance," "Instruction," "The Junior High School Library," "The Elementary School Library," "The Rural School Library," and "The Teacher Training Library." An idea of the type of material included in each division of the book may be gained from the following significant topics discussed under the general heading, "The High School Library": "The Efficient High School Library," "A Day in a Modern High School Library," "The Development of the Modern High School Library," "Schenley High School Library, Pittsburgh," "How We Use Our High School Library," and "The Diary of a School Librarian."

The book is useful as a general guide to beginning librarians, student helpers in libraries, students of library methods, and teachers or principals in elementary and secondary schools who contemplate the establishment of a school library or who desire to enhance the usefulness of a library already established.

R. S. NEWCOMB

Guiding principles in thesis preparation.—The thesis submitted by the graduate student reflects his ability to collect, organize, and interpret facts. While, in the main, the thesis must be an original production and a genuine contribution, it is important that the student have in mind certain guiding principles. A knowledge of these principles should lead to a more scientific method of approach and a more thorough understanding of the preparation of a thesis. It should also aid in the elimination of much wasted time caused by lack of definite information.

The purpose of the handbook on thesis preparation[1] prepared by Professor Reeder is well described in the following quotation.

> Those writing theses are in need of, and are entitled to, stimulation, guidance, and help, and it would seem that much of this assistance might be obtained through written directions and suggestions were such available. It is the chief purpose of this manual, therefore, to record some directions and suggestions, which, it is hoped, will be serviceable not only to those writing theses but also to those directing the writing of them [p. 6].

The author presents in fifteen chapters the principles which he believes should be understood by those who attempt to prepare theses. Every chapter is a source of information for the student who is actually engaged in thesis preparation or is planning a thesis. Each chapter is organized in such a manner that the outstanding facts are clearly established and may be easily reviewed

[1] Ward G. Reeder, *How to Write a Thesis.* Bloomington, Illinois: Public School Publishing Co., 1925. Pp. 136.

by the student. One of the most interesting chapters is the first, which discusses the "Scientific Nature of the Thesis." The author points out in this chapter the chief characteristics of a good thesis. To him the attributes of such a thesis are accuracy, impartiality, objectivity, and verification, each of which he treats in a clear and concise manner. In the latter part of the chapter he presents in outline form some of the common violations of the principles of scientific procedure. The same general mode of treatment is followed throughout the entire book. Chapter xiv consists of a set of review questions, which are intended to aid the student in recalling the important facts in the previous chapters.

This volume should be of genuine assistance to the graduate student and should tend to eliminate many otherwise necessary conferences with the instructor under whom the thesis is being prepared.

D. M. WIGGINS

Two new texts in French.—In presenting *Easy Stories of French Life from Guy de Maupassant*,[1] Professor W. Patton Graham, of the University of Virginia, sponsors this author's tales for the following reasons: (1) They are interesting. (2) They are easy. (3) They are written in the best French style. (4) They furnish an excellent basis for conversation—the final goal to be reached. The first three reasons are fortunately tenable; in the fourth particular Professor Graham has done his full share to make the material meet the requirements for a sound, practical text. There are nine stories, five of which—*Le Parapluie*, *L'Épave*, *L'Infirme*, *La Guerre*, and *Le Trou*—are comparatively new to classroom use. Immediately following each story is first an extensive questionnaire in French and then a well-chosen vocabulary for intensive drill. Beginning with the third story, there is a section which contains a list of applicable French proverbs. More than sufficient notes and a French-English vocabulary conclude the volume. At first, the instructor may regard the proverbs as an annoying innovation; but, after some experimentation, he is likely to change his mind concerning their possible contribution to language power. The editor has presented Maupassant to the student in a short, clear, and appealing introduction in English. It is fairly safe to say that it is a dull student who will not be stimulated by this collection of vigorous *contes* once he comes to know them.

Henry Becque, the dramatist, is little known to the French students in America who have not yet advanced to the *genre* courses. With considerable hardihood, Professor Eric A. Dawson, of the University of Mississippi, has undertaken the publication of Becque's somber drama, *Les Corbeaux*,[2] expressly for use in early reading. Although *Les Corbeaux* is unquestionably Becque's greatest work, Professor Dawson's choice of it as a play for classroom work is

[1] *Easy Stories of French Life from Guy de Maupassant.* Compiled and edited by W. Patton Graham. New York: Harcourt, Brace & Co., 1925. Pp. xii+168.

[2] Henry Becque, *Les Corbeaux.* Edited by Eric A. Dawson. Boston: D. C. Heath & Co., 1925. Pp. xviii+174. $0.96.

open to question. It is possibly the most cheerless play in the modern French theater. There is tremendous power and classic simplicity in its bitter story of a valiant woman, suddenly widowed, who strives to fend off the grasping men of affairs, the vultures, who swoop down on her and her daughters and their little fortune after her husband's death. Her deep sense of family responsibility is truly French, and her vain struggle is magnificent. In her defeat she is forced to give one of her daughters as tribute in a loveless marriage to the most clever and avaricious of the *Corbeaux*. The play is rich in realism and in sustained dramatic power, but it is almost certain that the younger students will be far less impressed by these high qualities than by the unbroken monotony in the bitter theme.

In the scholarly Preface, careful notes, and adequate vocabulary, Professor Dawson shows ability in transforming a modern play into a workable text for general French classes. One may hope that he will soon repeat the undertaking with some dramatic work of a more cheerful type. It is certain that an advanced course in the French Drama of the Nineteenth Century would be incomplete without some recognition of *Les Corbeaux* by Henry Becque, but it is equally certain that the high-school pupil or the average student in the general college course in French, who is probably learning enough about the problems of life in his daily experience, ought to be offered more suitable reading material.

DURBIN ROWLAND

A handbook for Latin teachers.—A revision of Mr. Game's popular handbook for Latin teachers[1] has appeared. This revised edition is an improvement over the original and is by far the best available handbook for the younger teachers. The fact that it is inferior to the constructive chapters of the report of the Classical Investigation is counterbalanced by its conciseness and easily accessible information.

Chapters i–vii are of little value. On the other hand, they are less objectionable than are most introductions of the sort. They serve as a rather pleasant introduction, with a fair point of view, which will probably put a young teacher in an agreeable frame of mind to absorb the more valuable hints that follow. The later material lays no claim to being either a study of underlying psychology or a report of accurately tested experiments. It consists of gleanings from the experience of a man who has been successful in teaching Latin to many people of varied ability. The devices that he suggests have worked, and he passes on his experience in the belief that they will work again and that those just beginning to teach may profit by the information. He gives working principles for the selection of texts for Latin classes, principles that are valid so far as they go. Perhaps they go as far as is wise for general suggestions. Following this, there are specific suggestions for each of the four years of Latin, including

[1] Josiah Bethea Game, *Teaching High-School Latin*. Chicago: University of Chicago Press, 1925 [revised]. Pp. xii+152. $2.00.

suggestions on such matters as class organization and bases for promotion as well as more specialized suggestions relating to Latin. Of most value probably are the lists of material for use in Latin classes, books in Latin and English, maps, charts, pictures, statuary, and lantern slides. One may differ radically with Mr. Game with regard to the values of the books which he has listed in the order of merit. In fact, he offers no list that the reviewer would not revise. Rapid publication of "made" Latin in response to the report of the Classical Investigation leaves the Latin list incomplete even now. At that, information as to what may be obtained is included, with some notion of its value, and young teachers may find it in accessible form. Aside from isolated magazine articles, no other compilation exists.

Mr. Game's point of view and attitude are consistent throughout. His opinions are his own and have proved serviceable. He offers them for what they are worth to those to whom they may be of value.

MIMA MAXEY

A mathematics series for the junior high school.—As the title implies, the authors of *Practical Mathematics for Junior High Schools*[1] have prepared a series of books to meet the practical needs of pupils of junior high school age. In the first book material is presented which is intended to develop a mastery of the principles and processes of arithmetic as a tool and to promote the growth of ability and interest in mathematical thinking. The work is transitional, some of the aspects of arithmetic related to algebra and geometry being included. Many problems rich in occupational information and representing current situations and conditions are provided. There are also many practice exercises in the four fundamental operations. These are carefully distributed and afford good opportunities for review. However, the book does not contain enough intuitive geometry and algebra for a first-year junior high school course.

The second book attempts to increase accuracy and speed in the four fundamental processes by introducing more practice tests. While this book continues the algebra and the intuitive geometry, it places greater emphasis on the arithmetic of business, including such topics as percentage, banking, taxes, insurance, and problems of the individual and the home. In a chapter on similar triangles the authors devote two pages to the tangent ratio; this brief treatment of the subject might have been profitably omitted.

The third book is largely algebra and includes such topics as the formula, signed numbers, the equation, the graph, and ratio and proportion. Trigonometric ratios are carried far beyond the introductory phases presented in the second book but are kept within the range of the abilities of ninth-year pupils. Factoring and logarithms are included in their elementary forms. The volume

[1] Frederick G. Bonser, Frank G. Pickell, and James H. Smith, *Practical Mathematics for Junior High Schools:* First Year, pp. x+246; Second Year, pp. x+278; Third Year, pp. x+294. Chicago: Mentzer, Bush & Co., 1925.

contains many cumulative reviews, and many timed tests are scattered throughout the book to enable the pupil to measure his progress.

The titles are found on both the front covers and the back covers, and the series is very attractive in appearance. It should prove satisfactory to mathematics teachers in the junior high school.

C. A. STONE

A psychological approach to the problem of delinquency.—Social workers of today are recognizing the fact that, in dealing with delinquency, they must discover and correct the causes of youthful waywardness instead of merely apprehending culprits and attempting to reclaim them. Such an analytical approach to the causes of delinquency and their treatment is very effectively presented in a book[1] by Cyril Burt, an English psychologist and educator.

The major emphasis in this book is psychological, as is indicated by the chapter headings: "Hereditary Conditions," "Environmental Conditions within the Home," "Environmental Conditions outside the Home," "Physical Conditions: Developmental," "Physical Conditions: Pathological," "Intellectual Conditions: Subnormal Intelligence," "Intellectual Conditions: Supernormal and Special Abilities," "Temperamental Conditions: Instincts and Emotions," "General Emotional Instability: Habit Formation," "Sentiments and Complexes," and "Neuroses." Dealing as it does with a special social problem from a psychological point of view, the work will perhaps not fully meet the demands of a textbook in either psychology or sociology, but it is a most valuable reference book for anyone engaged in either field of work.

The author uses data derived from a carefully recorded study of two hundred cases of juvenile delinquency which came under his personal observation for diagnosis and treatment. In the introductory chapter he gives a summary of his method of procedure and the factors taken into account. His point of view and method seem to be thoroughly scientific.

The general method of procedure is to give a detailed analysis of all the factors entering into the condition being considered and then to outline methods of treatment and correction applicable to the various factors. Usually the analytical material occupies the major part of the chapter, although in several instances the author devotes as much as one-half of the chapter to remedial and corrective measures applicable to certain conditions. In arriving at conclusions as to the part played by various factors contributing to youthful delinquency, he tabulates the frequency of occurrence of a certain condition—for example, poverty—among the cases used as the basis of his study as compared with the frequency of occurrence of the same condition among families at large. The data are very clearly summarized in tables, from which one may see at a glance the evidence supporting the conclusions of the author.

[1] Cyril Burt, *The Young Delinquent*. New York: D. Appleton & Co., 1925. Pp. xvi+620. $5.00.

The reader's interest is stimulated by the numerous concrete illustrations which the author uses in diagnosing the various causes of delinquency. The absence of technical terms adds to the ease with which the book may be read by anyone having a background of general psychology or sociology. The scientific attitude of the author is shown in the fact that he is not dogmatic in his statement of psychological principles which are still debated among psychologists themselves. He states various points of view and then indicates the position which he takes, giving reasons for his belief.

The volume is, no doubt, a distinct contribution to both psychology and sociology. It should prove helpful and suggestive to teachers, social workers, ministers, and parents.

A. J. BRUMBAUGH

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

BORAAS, JULIUS, and SELKE, GEORGE A. *Rural School Administration and Supervision.* Boston: D. C. Heath & Co., 1926. Pp. xii+260.

DAILY, BENJAMIN W. *The Ability of High School Pupils to Select Essential Data in Solving Problems.* Teachers College Contributions to Education, No. 190. New York: Teachers College, Columbia University, 1925. Pp. viii+104.

FURFEY, PAUL HANLY. *The Gang Age.* New York: Macmillan Co., 1926. Pp. xii+190. $2.00.

GARRETT, HENRY E. *Statistics in Psychology and Education.* New York: Longmans, Green & Co., 1926. Pp. xiv+318. $3.50.

GOOD, ALVIN. *Sociology and Education.* New York: Harper & Brothers, 1926. Pp. xxviii+590. $3.00.

HORN, JOHN LOUIS. *The American Public School.* New York: Century Co., 1926. Pp. xx+404. $2.00.

KOOS, LEONARD V. *Trends in American Secondary Education.* The Inglis Lecture, 1925. Cambridge, Massachusetts: Harvard University Press, 1926. Pp. 56. $1.00.

MOSHER, RAYMOND M. *A Study of the Group Method of Measurement of Sight-Singing.* Teachers College Contributions to Education, No. 194. New York: Teachers College, Columbia University, 1925. Pp. vi+76.

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SMITH, DAVID EUGENE. *History of Mathematics,* Volume II. Boston: Ginn & Co., 1925. Pp. xii+726.

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COMFORT, WILLIAM WISTAR. *Practical French Composition.* Boston: D. C. Heath & Co., 1926. Pp. viii+152. $1.00.

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Différents Souvenirs de jeunesse. Episodes selected from the novels of Anatole France. Edited by V. F. Boyson. New York: Oxford University Press, American Branch, 1925. Pp. 100. $0.50.

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HAUFF, WILHELM. *Die Geschichten vom Kalif Storch und von dem Kleinen Muck.* Edited by G. Noël-Armfield. New York: Oxford University Press, American Branch, 1925. Pp. 92. $0.70.

Magic Casements. Compiled by George S. Carhart and Paul A. McGhee. New York: Macmillan Co., 1926. Pp. xxxvi+728.

MANNING, SIBYLLA, and DONALDSON, ANNA M. *Fundamentals of Dress Construction.* New York: Macmillan Co., 1926. Pp. xvi+224.

PFUTZENREUTER, EDWIN M. *Illustrated Editions of High School Classics.* Urbana, Illinois: University of Illinois Library School, 1925. Pp. 62. Mimeographed. $0.75.

ROLLER, DUANE E. *Sources of Free Material for Use in the Teaching of Natural Science.* University of Oklahoma Bulletin, New Series No. 314. Norman, Oklahoma: University of Oklahoma, 1925. Pp. 36. Free.

SHIPHERD, H. ROBINSON. *The Fine Art of Writing for Those Who Teach It.* New York: Macmillan Co., 1926. Pp. xiv+358.

SIERRA, GREGORIO MARTÍNEZ. *El ama de la casa.* Edited by Arthur L. Owen. Chicago: Benj. H. Sanborn & Co., 1926. Pp. xlvi+128.

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STONE, JOHN C. *The New Mathematics,* Book One. Chicago: Benj. H. Sanborn & Co., 1926. Pp. xii+314. $0.96.

STONE, JOHN C., and HART, HOWARD F. *A Second Course in Algebra.* Chicago: Benj. H. Sanborn & Co., 1926. Pp. xiv+294.

TRAFTON, GILBERT H. *Science of Home and Community.* New York: Macmillan Co., 1926 [revised]. Pp. xiv+578.

WOODS, GEORGE B., and STRATTON, CLARENCE. *A Manual of English.* Garden City, New York: Doubleday, Page & Co., 1926. Pp. xxvi+282. $1.00.

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